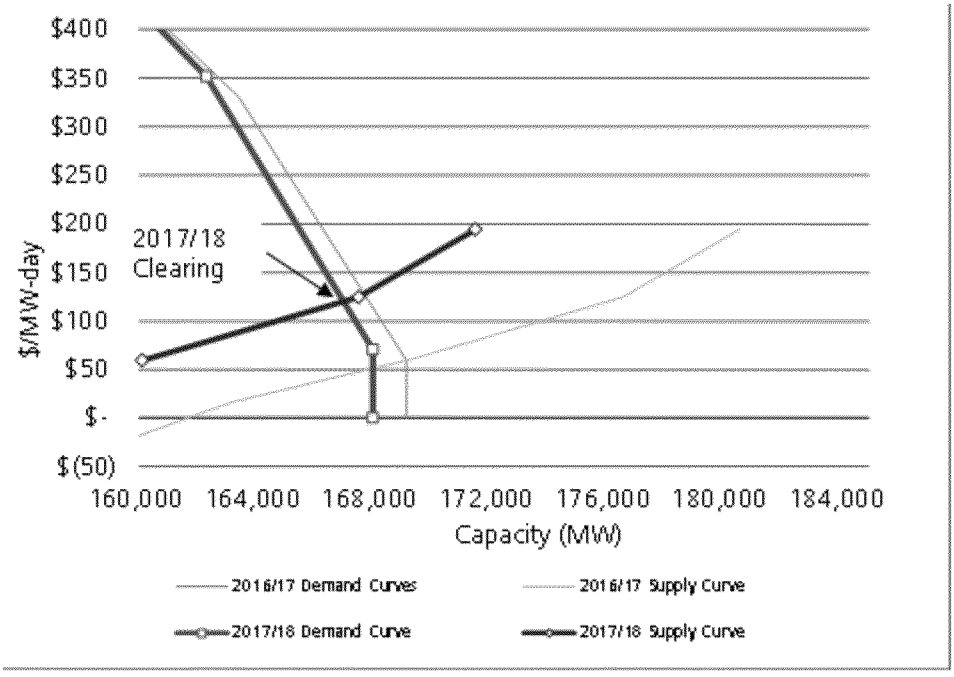
Changes to Price Targets		Price	Rating		Price Target	
Company	RIC	26-May-14	New	Old	New	Old
American Electric Power	AEP.N	51.41	Neutral	Neutral	52.00	52.00
Calpine	CPN.N	22.42	Neutral	Neutral	25.00	25.00
Dominion	D.N	69.32	Buy	Buy	**82.00**	80.00
Dynegy	DYN.N	31.78	Buy	Buy	41.00	41.00
Entergy	ETR.N	74.06	Sell	Sell	64.00	64.00
Exelon	EXC.N	34.15	Neutral	Neutral	**36.00**	38.00
FirstEnergy	FE.N	31.48	Neutral	Neutral	**33.00**	35.00
PPL Corp.	PPL.N	33.38	Neutral	Neutral	**34.00**	35.00
Public Service Entrp.	PEG.N	37.40	Neutral	Neutral	**40.00**	41.00

	2013/14	2014/15	2015/16	2016/17	2017/2018	UBSe 2017/18	Survey 2017/18
Resource Clearing Prices ($/MW-day)							
RTO	$27.73	$125.99	$136.00	$59.37	**$120.00**	$70.00	$70.00
EMAAC	$245.00	$136.50	$167.46	$119.13	**$120.00**	$70.00	$70.00
SWMAAC	$226.15	$136.50	$167.46	$119.13	**$120.00**	$70.00	$70.00
MAAC	$226.15	$136.50	$167.46	$119.13	**$120.00**	$70.00	$70.00
DPL-S	$246.00	$136.50	$167.46	$119.13	**$120.00**	$70.00	$70.00
PS-N	$245.00	$226.00	$167.46	$219.00	**$215.00**	$200.00	$200.00
PSEG	$245.00	$136.50	$167.46	$219.00	**$215.00**	$200.00	$200.00
PEPCO	$247.14	$136.50	$167.46	$119.13	**$120.00**	$70.00	$70.00
ATSI			$357.00	$114.23	**$120.00**	$70.00	$70.00
Reserve Margin	**20.2%**	**19.6%**	**20.2%**	**21.1%**	**19.7%**		


$400
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$(50)
$/MW-day
2017/18
Clearing
160,000
164,000
168,000
172,000
176,000
180,000
184,000
Capacity (MW)
2016/17 Demand Curves
2016/17 Supply Curve
2017/18 Demand Curve
2017/18 Supply Curve

EPS Contribution	2012A	2013A	2014E	2015E	2016E	2017E
Distribution Utilities	2.51	2.28	2.62	2.67	2.90	2.83
Genco	0.62	0.68	0.51	0.45	0.28	0.30
Transmission Projects	0.09	0.16	0.30	0.40	0.52	0.68
Corporate and Other	(0.13)	0.10	0.04	0.04	0.04	0.04
Total EPS	**3.09**	**3.23**	**3.47**	**3.56**	**3.74**	**3.85**
Growth Rate		*4.4%*	*7.4%*	*2.8%*	*5.0%*	*3.0%*
EPS CAGRs		*2013-2016*	*5.0%*	*2014-2016*	*3.9%*	
Guidance		$3.05 - 3.25	$3.35 - 3.55	$3.30 - 3.60	$3.45 - 3.85	
Consensus		3.19	3.49	3.54		
Prior Estimate		3.23	3.47	3.56	3.74	3.85
Regulated-Only EPS		2.55	2.96	*3.11*	3.46	3.55

Price Target - P/E Calculation				
	2016 EPS	Group P/E	Prem/(Disc)	$/shr
Distribution Utility	2.87	14.4x	(5.0%)	39.26
Generation	0.31	14.4x	(10.0%)	3.97
Transmission	0.52	15.9x	0.0%	8.34
Other	0.04	10.0x	0.0%	0.39
Total	***3.74***	***13.9x***		***51.95***

Calpine Adj. EBITDA UBSe	2012	2013	2014	2015	2016	2017	2018
West	638	684	778	688	700	680	699
Texas	323	356	407	578	578	632	666
Southeast	102	80	116	17	14	12	12
North	590	615	683	651	552	526	573
Other	33	29	30	29	30	31	31
Corporate Allocation	63	66	54	67	68	70	72
Total EBITDA	**1,749**	**1,830**	**2,068**	**2,031**	**1,942**	**1,951**	**2,053**
Guidance	*1,800-1,825*		*1,900-2,000*				
Street Consensus (5/24/14)			*1,986*	*2,038*	*2,050*	*2,196*	
Previous UBS			*2,068*	*2,052*	*1,942*	*1,967*	

All figures in US $ million except per share data	2016E EBITDAR	EV/EBITDA Multiple			Enterprise Value		
		Low	Base	High	Low	Base	High
West	700	7.0x	8.0x	9.0x	$4,900	$5,600	$6,300
Texas	578	8.0x	9.0x	10.0x	4,623	5,201	5,779
Southeast (Remaining)	17	8.0x	9.0x	10.0x	133	149	166
North	552	8.0x	9.0x	10.0x	4,417	4,969	5,521
Other	30	8.0x	9.0x	10.0x	241	271	301
Hedge Impact (Adj. for Steam,etc.)	(11)	8.0x	9.0x	10.0x	(90)	(101)	(112)
Adj. for Commodity Margin to EBITDA	65	8.0x	9.0x	10.0x	523	588	653
Total / Implied	*1,931*	*7.6x*	*8.6x*	*9.6x*	*$14,747*	*$16,678*	*$18,609*
Subtract: Net Debt						(10,023)	
Subtract: Operating Leases						(160)	
Add: NPV of NOLs						1,171	
Add: Hedge Value						11	

	MWs	$/kW					
Remaining Southeast Portfolio:		Low	Base	High			
Auburndale Peaking Energy Center	117	$100	$200	$300	$12	$23	$35
Osprey Energy Center	599	250	350	450	150	210	270
Pine Bluff Energy Center	215	200	300	400	43	65	86
Morgan Energy Center	807	200	300	400	161	242	323
Total / Implied	1,738				*$366*	*$540*	*$713*
Subtracting out EV/EBITDA-based Southeast Portfolio					(133)	(149)	(166)
NPV of Equity					$5,988	$8,067	$10,144
Projected Number of Shares Outstanding (2016E)					325	325	325
Equity value per share					$18.37	$24.83	$31.22
Implied $/KW					565	639	713
FCF (pre-growth) for 2016						752	
Implied FCF Yield						9.3%	

Pro-Forma Dynegy-Ameren Estimates	2013A	2014E	2015E	2016E	2017E	2018E
Midwest (Dynegy Inc.)	50	215	193	206	213	207
West	95	49	46	52	7	8
Northeast	137	186	146	131	140	168
Illinois Power Holdings (Standalone)	12	74	81	113	149	163
PRIDE Reloaded (Mostly Gross Margin/Not O&M)			48	85	85	85
Consolidated G&A	(76)	(100)	(100)	(100)	(100)	(100)
Adj. EBITDA (Standalone DYN + IPH)	**219**	**425**	**413**	**486**	**494**	**530**
UBS Prior		**425**	**472**	**548**	**529**	**561**
Consensus (5/7/14)		390	503	608		
Guidance	200 - 225	300-350				
CoalCo	(10)-15					
GasCO	280 - 295					
Adj. EBITDA w/o G&A Allocation	**283**	**525**	**465**	**501**	**509**	**545**
CoalCo	(14)	133	51	71	76	73
GasCo	296	317	334	318	283	309
Illinois Power Holdings		74	81	113	149	163

Equity Value - Pro Forma for AEE Merger	2016
Adjusted EBITDA	
Dynegy Standalone (w/ full G&A)	$304
Less: 2016 EBITDA of West Peaking	($45)
PRIDE Reloaded	$85
EV/EBITDA Multiple	**10.0x**
Enterprise Value	**$3,434**
Book Value of Debt	
Term Loan B and Emissions Agreements	$813
5.875% Senior Notes (Due 2023)	$500
Total	**$1,313**
Illinois Holdings Ring-Fenced Debt (exclude; expect restructuring)	*$825*
Cash Position (as of 12/31/13) excluding $190Mn at IPH Genco	$653
Add: NPV of West Peaking	$45
Change in FCF through '16 (incl IPH)	$88
Net Projected Cash Position	**$787**
Equity Value	**$2,908**
Shares Outstanding	*105*
Remaining Equity Value / Share	***$27.82***
IPH Equity Value / Share (2016E)	***$4.94***
Total	***$32.76***

Equity Value - Ohio Transaction	2017
Adjusted EBITDA	
Incremental Transaction EBITDA	$224
Incremental Transaction Synergies (Run-rate)	$223
Total Adjusted EBITDA	$446
EV/EBITDA Multiple	10.0x
Enterprise Value	**$4,461**
Book Value of Incremental Debt Financing	$1,785
Equity Value	**$2,677**
Legacy Shares Outstanding	*105*
Incremental Shares Outstanding	*20*
Incremental Equity Value / Share	***$21.42***
Less: Dilution on Legacy Dynegy/IPH	***$6.37***
Total Pro-Forma DYN Valuation	***$48.81***

	Stand-Alone Value	Probability	Prob-Weighted Value
Standalone Dynegy Valuation	***$32.76***	*50%*	*$16.38*
Dynegy M&A Scenario	***$48.81***	*50%*	*$24.41*
			$40.79

Exelon Consolidated EPS	2012A	2013A	2014	2015	2016	2017	2018
PECO	0.47	0.46	0.46	0.47	0.48	0.50	0.53
ComEd	0.47	0.49	0.56	0.63	0.66	0.70	0.75
BGE	0.06	0.23	0.22	0.22	0.22	0.24	0.25
Exelon Generation	1.89	1.40	1.21	1.35	1.26	1.60	1.71
Other	(0.04)	(0.07)	(0.06)	(0.10)	(0.14)	(0.15)	(0.16)
Total EPS	2.85	2.50	2.38	2.56	2.49	2.89	3.08
Guidance			*2.25-2.55*				
Consensus			2.37	2.34	2.23	2.33	-
Prior UBS estimates		*2.50*	*2.38*	*2.62*	*2.54*	*2.80*	*2.95*
Regulated EPS		*1.17*	*1.24*	*1.31*	*1.37*	*1.44*	*1.53*
Regulated Guidance			*1.10-1.40*	*1.15-1.45*	*1.25-1.55*		

All figures in US $ million except per share data	EV/EBITDA & P/E Multiple			Enterprise Value		
2016 EBITDA	*Low*	*Base*	*High*	*Low*	*Base*	*High*
Generation	2,161	7.0x	8.0x	9.0x	15,128	17,289	19,451
Hedge Value	130	7.0x	8.0x	9.0x	912	1,042	1,172
Other/Equity Investments	229	7.0x	8.0x	9.0x	1,600	1,828	2,057
Retail Margin (Power+Non-Power)	527	4.0x	5.0x	6.0x	2,107	2,633	3,160
Total / Implied	3,047	*6.5x*	*7.5x*	*8.5x*	19,746	22,793	25,840
less ExGen net debt (incl PTC/ITC benefits)						(5,733)	
less HoldCo debt						(1,300)	
add Hedge Value						(130)	
Adding back the FCF drag from Potential Retirements(Clinton, Byron, Ginna, Quad Cities)	27	7.0x	8.0x	9.0x	189	216	243
NPV of Equity					12,772	15,845	18,919
Current Number of Shares outstanding					866	866	866
Merchant Generation value per share					*$ 14.76*	*$ 18.31*	*$ 21.86*

Regulated Utilities	P/E Multiple					Equity Value		
2016 Net Income	*Low*	*Peer*	*Prem/ Discount*	*Base*	*High*	*Low*	*Base*	*High*
BGE Net Income	194	11.9x	14.4x	-1.5x	12.9x	13.9x	2,312	2,507	2,701
PECO Net Income	417	12.4x	14.4x	-1.0x	13.4x	14.4x	5,174	5,591	6,008
ComEd Net Income	575	11.9x	14.4x	-1.5x	12.9x	13.9x	6,838	7,412	7,987
Total / Implied	*1,186*	*12.1x*			*13.1x*	*14.1x*	*14,324*	*15,510*	*16,696*
Implied EPS	*1.37*								
Current Number of Shares outstanding							866	866	866
Regulated Utility value per share							*$ 16.55*	*$ 17.92*	*$ 19.29*
Total Equity Value per Share							**31.30**	**36.23**	**41.15**

UBS Estimates	2013E	*2014 Guidance*	2014E	2015E	2016E	2017E	2018E
Energy Delivery	2.03	*1.98-2.04*	2.02	2.05	2.09	2.12	2.18
FirstEnergy Solutions	0.73	*0.12-0.22*	0.13	0.53	0.29	0.19	0.31
Transmission (ATSI, Trail, and OpCos)	0.47	*0.52-0.56*	0.52	0.54	0.71	0.80	0.86
Other	(0.20)	*(0.22)*	(0.22)	(0.15)	(0.17)	(0.19)	(0.22)
Total UBSe EPS	**3.04**	***2.40-2.60***	**2.45**	**2.98**	**2.92**	**2.93**	**3.13**
Previous UBSe (except Guidance)		*2.45-2.65*	2.47	3.15	3.05	2.90	
Consensus			2.48	3.00	2.90	2.74	3.30

Gross Margin	2013	2014	2015	2016	2017	2018
Open Coal Energy Margins	322	393	635	638	707	715
Open Nuclear Energy Margins	730	761	877	905	933	943
Hedge Value (From Analyst Day+MtM Sinc	805	411	(255)	(144)		
Capacity Revenues	237	406	929	668	387	438
Marketing Margin (UBSe Retail Margins)	259	1	100	100	100	100
Gross Margin (Gen/Retail-Only)	**2,352**	**1,972**	**2,285**	**2,167**	**2,126**	**2,197**

EBITDA	2013	2014	2015	2016	2017	2018
Open Fossil EBITDA	(74)	114	810	574	352	538
Open Nuclear EBITDA	41.12	169	329	245	276	320
Retail & Hedges EBITDA	1,262	332	(237)	(42)	102	(65)
FES Total	**1,229**	**616**	**902**	**777**	**730**	**793**
Adjusted EBITDA Guidance		615-655	$950-$1,050			

Sum of the Parts Analysis - Combined Hedged and Open Analysis - UBSe - Using both EV/EBITDA and P/E							
	EBITDA/Net Income	EV/EBITDA & P/E Multiple			Enterprise Value		
Merchant Generation	**2016 EBITDA**	**Low**	**Base**	**High**	**Low**	**Base**	**High**
Open Fossil Energy EBITDA	574	7.0x	8.0x	9.0x	$4,017	$4,591	$5,164
Open Nuclear Energy EBITDA	245	7.0x	8.0x	9.0x	$1,715	$1,960	$2,205
Capacity Price Normalization	(203)	7.0x	8.0x	9.0x	($1,420)	($1,623)	($1,826)
Marketing (Retail + Hedges)	(42)	4.0x	5.0x	6.0x	($168)	($210)	($252)
Total / Implied	**574**	***7.2x***	***8.2x***	***9.2x***	**$4,143**	**$4,717**	**$5,291**
Less: FES/AES Net Debt (2015 YE)						($4,144)	
Less: Parent Debt Notes (2015 YE)						($3,150)	
Less: Parent ST Borrowings						($3,212)	
Add Back: FirstEnergy Transmission Borrowings						$1,000	
Allocate: 100% of Parent Borrowings to Regulated Utilities						$2,206	
Less: Sale Leasebacks						($855)	
Add: Signal Peak Equity Value (PRB Coal Mine Stake)						$400	
Add: Capacity Payment Normalization for 2015/16 auction in ATSI						203	
FES Equity (Net of Parent Debt)					($3,408)	($2,834)	($2,261)
Current Number of Shares outstanding					425	425	425
FES Open Equity value per share (Net of Parent Debt)					($8.03)	($6.68)	($5.32)

Regulated Utilities	2016 Net	P/E Multiple					Equity Value		
		Low	Peers	Premium/ Discount	Base	High			
Core Utilities									
Energy Delivery (FE and AYE Utilities)	888	12.4x	14.4x	-1.0x	13.4x	14.4x	$11,009	$11,897	$12,785
Transmission (ATSI, TRAIL)	299	14.4x	14.4x	1.0x	15.4x	16.4x	$4,312	$4,611	$4,911
Total EPS	*2.80*								
Parent Costs									
Net HoldCo/Parent Expenses (SG&A, et	(72)	13.4x	14.4x	0.0x	14.4x	15.4x	($969)	($1,041)	($1,114)
Add Back: Parent Interest Expense	85	13.4x	14.4x	0.0x	14.4x	15.4x	$1,132	$1,217	$1,301
Net Parent EPS (SG&A ex-Interest)	*0.03*								
Total / Implied Utilities	1,199	15.0x			13.9x	17.3x	$15,484	$16,684	$17,883
Total Regulated EPS	*2.82*								
Current Number of Shares outstanding							425	425	425
Regulated Utilities & Transmission Equity value per share							$36.47	$39.29	$42.12
FirstEnergy Combined (Regulated & FES) Equity Value							$28.44	$32.62	$36.79

	2012A	2013A	2014E	2015E	2016E	2017E
PSEG Power	1.27	1.40	1.28	0.97	0.85	0.88
PSE&G	1.04	1.21	1.41	1.57	1.74	1.90
PSEG Enterprise & Other	0.13	(0.03)	0.07	0.09	0.11	0.11
Total	***2.44***	***2.58***	***2.77***	***2.62***	***2.71***	***2.90***
Prior	2.44	2.58	2.77	2.64	2.74	2.89
Consensus			2.76	2.67	2.73	
% Regulated	43%	47%	51%	60%	64%	66%
Regulated EPS CAGR ('13-16')					13%	
Guidance		$2.40-$2.55	$2.55-$2.75			

Sum of the Parts Analysis - Hedged Analysis - UBSe

All figures in USD millions except per share	2016E Adj. EBITDA	EV/EBITDA & P/E Multiple			Enterprise Value		
		Low	Base	High	Low	Base	High
PSEG Power	1,140	8.0x	9.0x	10.0x	9,119	10,259	11,399
Capacity Price Normalization @ $120/MW-day	(156)	8.0x	9.0x	10.0x	(1,251)	(1,407)	(1,563)
PSEG Enterprise /PSEG LI (LIPA)	80	5.0x	6.0x	7.0x	399	479	559
Corp. & Other	-	4.0x	5.0x	6.0x	-	-	-
Total / Implied	***1,063***	*7.8x*	*8.8x*	*9.8x*	***8,268***	***9,331***	***10,395***
Subtract: Net Debt						(2,511)	
Add: Three years of PS Premium Capacity Pricing (NPV) over $120/MW-day						475	
NPV of Power and Non-Reg Equity					**5,756**	**7,295**	**7,883**
Number of Shares Outstanding (2016E)					508	508	508
Power & Holdings Equity Value per Share using Hedged EBITDA					**$11.34**	**$14.37**	**$15.53**
Maintenance Capex						($198)	
FCF (EBITA - Maintenance Capex)						$898	
Implied FCF Yield on Power Equity						*12.32%*	

	2016 Net Income/EPS	P/E Multiple					
PSE&G Net Income	883	13.9x	14.9x	15.9x		**12,271**	**13,154**	**14,037**
Peer Multiple =			*14.4x*				
Premium/Discount =			*0.5x*				
Number of Shares Outstanding (2016E)						508	508	508
PSE&G Equity Value Per Share	**$1.74**					**$24.18**	**$25.92**	**$27.66**
Total Equity Value per Share						**$35.65**	**$40.29**	**$43.35**

PPL Corp. UBSe EPS	2013E	2014E	2015E	2016E	2017E	2018E	13-'17 CAGR
Energy Supply	0.39	0.11	0.07	0.11	0.10	0.14	
UK Utilities	1.37	1.37	1.44	1.50	1.51	1.57	2.5%
PA Electric Utility	0.32	0.38	0.41	0.45	0.49	0.53	10.9%
Kentucky Utilities	0.48	0.43	0.53	0.50	0.60	0.57	5.8%
Corporate	(0.11)	(0.06)	(0.04)	(0.12)	(0.16)	(0.21)	
Total	2.45	2.23	2.40	2.43	2.54	2.61	
UK Utilities Guidance (Jul 13)	1.25-1.32	1.19-1.31	1.17-1.33				
Prior UBSe	2.45	2.22	2.43	2.51	2.51		
Street Consensus	2.45	2.24	2.24	2.24	2.24		

PPL Supply Projections	2011A	2012A	2013A	2014E	2015E	2016E	2017E	2018E
Generation EBITDA	1,311	1,257	856	576	561	659	621	646
Nuclear D&A	119	112	132	148	152	157	161	166
Interest Expense -- PPL Supply Only	(160)	(160)	(153)	(118)	(118)	(118)	(118)	(118)
Taxes (Est.)	(515)	(255)	(138)	(39)	(31)	(64)	(55)	(67)
FCF pre-capex (proxy for FFO)	**755**	**953**	**697**	**567**	**564**	**634**	**609**	**627**
Growth/Other Capex								
Base Capex	507	197	197	101	100	250	250	250
Nuclear Fuel	152	159	161	158	160	160	160	160
Environmental	181	314	89	354	295	0	0	0
Other	0	230	253	(83)	(45)	20	20	20
Total Growth/Other Capex	**840**	**900**	**700**	**530**	**510**	**430**	**430**	**430**
Free Cash Flow	(85)	53	(3)	37	54	204	179	197
Debt Profile (incl. ST Debt Balance)	3,424	3,628	2,525	3,192	3,192	3,192	3,192	3,192
Cash	(379)	(413)	(551)	(588)	(642)	(847)	(1,026)	(1,223)
Net Debt	3,045	3,215	1,974	2,604	2,550	2,345	2,166	1,969
Equity Unit Conversions				978				
Sale Proceeds (Back to the parent)			895					
Colstrip Debt			273					
Maturities (From 1Q14 Slides)			438	303	304	354	4	403
Net Debt/EBITDA	4.0x	3.4x	2.8x	4.6x	4.5x	3.7x	3.6x	3.1x
FFO / Debt	22%	26%	28%	18%	18%	20%	19%	20%
Moody's Target for Supply			20%					

Positive Free Cash Flow Forecast

All figures in US $ million except per share data	2016E	P/E and EV/EBITDA Multiple					Enterprise Value	
		Low	Prem/ Peer Discount	Base	High	Low	Base	High
International (UK) Utilities	2016 Net Income		P/E Multiples				Equity Value	
WPD - P/E	385	12.4x	14.4x -1.0x	13.4x	14.4x	$4,774	$5,159	$5,159
Implied Per Share	0.59					*$7.30*	*$7.89*	*$7.89*
Central Networks - P/E	595	12.4x	14.4x -1.0x	13.4x	14.4x	$7,375	$7,970	$8,565
Implied Per Share	0.91					*$11.26*	*$12.19*	*$13.10*
Total UK	980	12.4x		13.4x	14.4x	$12,150	$13,129	$14,109
Implied Per Share	1.50					*$18.56*	*$20.08*	*$21.57*
Domestic Regulated Utilities	2016 Net Income		P/E Multiples				Equity Value	
PPL Electric Utilities (PA T&D)	292	14.4x	14.4x 1.0x	15.4x	16.4x	$4,206	$4,498	$4,791
Implied Per Share	0.45					*$6.43*	*$6.88*	*$7.32*
PPL Kentucky (KU/LG&E)	327	12.9x	14.4x -0.5x	13.9x	14.9x	$4,221	$4,549	$4,876
Implied Per Share	0.50					*$6.45*	*$6.96*	*$7.46*
Domestic Utilities Equity Value using P/E	620	13.6x		14.6x	15.6x	$8,434	$9,054	$9,674
Implied Per Share	0.95					*$12.90*	*$13.84*	*$14.79*
Less: Parent Debt							-$850	
Less: Supply Debt @ Parent							-$880	
Total Parent Debt							-$1,730	
Implied Per Share							*-$2.65*	
Current Number of Shares outstanding						654	654	654
Total PPL Regulated Equity Value per Share (ex-Supply)						$28.82	$31.26	$33.12
		EV/EBITDA Multiples						
PPL Supply	2016 EBITDA	Peer	Premium	Base	High	Low	Base	High
Open EBITDA (No Hedges Disclosed)	585	6.0x	8.0x -1.0x	7.0x	8.0x	$3,513	$4,098	$4,684
M&T (EnergyPlus)	25	4.0x	5.0x 0.0x	5.0x	6.0x	$100	$125	$150
Total Supply EV	610	5.9x	9.0x 0.0x	9.0x	7.9x	$3,613	$4,223	$4,834
Projected PPL Supply Net Debt (Supply Debt @ Parent Above)								
PPL Supply ST Debt (Debt as of 3/31/14)							-$970	
Less: Expected refinancing with May equity issuance							$500	
PPL Supply LT Debt ($2,525Mn as of 3/31/14 less $607Mn maturing in 2014/2015)							-$1,917	
PPL Supply Cash (UBSe)							$125	
Projected Segment Net Debt							-$2,262	
Net Equity Value							$1,961	
Implied Per Share							*$3.00*	
Grand Total PPL Equity Value per Share						$31.82	$34.26	$36.12

2014 Guidance vs 2013 Actual Results and UBS 2014E Estimates by Segment (EBIT) using ABS								
		FY14 Guidance			UBS			
VEPCO	2013A	Low	High	2014 Mid	2014E	2015E	2016E	2017E
Electric Distribution	542	590	615	603	604	664	703	724
Electric Transmission	402	460	480	470	478	558	613	664
Utility Generation	1,293	1,435	1,485	1,460	1,456	1,525	1,578	1,658
Virginia Power - Corp Adjusted	-	-	-	-	-	-	-	-
VEPCO Adjusted EBIT	**2,237**	**2,485**	**2,580**	**2,533**	2,538	2,746	2,894	3,047
Regulated Gas Ops								
Gas Distribution	242	235	245	240	240	266	288	310
Gas Transmission (Incl. Caiman)	834	780	810	795	808	891	944	943
Total Regulated Gas	**1,076**	**1,015**	**1,055**	**1,035**	1,048	**1,157**	1,232	1,252
Merchant Generation	341	315	360	338	340	471	418	507
Dominion Retail	115	55	65	60	62	62	62	62
Corp & Other	(45)	(35)	-	(18)	(10)	(1)	68	418
Total Adjust EBIT	**3,724**	**3,835**	**4,060**	**3,948**	3,977	4,435	4,674	5,287
Interest expense	870	935	925	930	934	987	1,018	1,069
Income Taxes	950	950	970	960	968	1,120	1,206	1,392
Non-controlling Interests	23	25	15	20	20	20	20	20
Operating Earnings	**1,881**	**1,925**	**2,150**	**2,038**	2,055	**2,307**	2,429	2,806
Shares Outstanding	580	584	582	583	585	589	599	613
EPS	**3.25**	**3.30**	**3.69**	**3.50**	3.52	**3.92**	4.06	4.58
Previous UBS Estimates					**3.52**	**3.86**	**3.99**	**4.51**
Formal EPS Guidance Range		**3.35**	**3.65**	**3.35-3.65**				
Guidance of 5%-8% growth off 2011 3.05 base minus 0.04 for elec retail				**3.53**	3.53	3.73	3.93	
Growth Rate of UBS Estimates						**11.4%**	**3.6%**	**12.8%**
Consensus					3.55	3.76	3.94	4.13

Sum of the Parts Analysis - UBSe

	2015E Adj. EBITDA	EV/EBITDA			Enterprise Value		
		Low	Base	High	Low	Base	High
Dominion Merchant Generation	511	8.0x	9.0x	10.0x	4,087	4,598	5,109
Hedge Value	129	8.0x	9.0x	10.0x	1,029	1,157	1,286
Dominion Energy (ex-LDCs/Blue Racer/Cove Point	738	11.0x	12.0x	13.0x	8,119	8,857	9,595
Dominion Retail	67	4.0x	5.0x	6.0x	268	335	402
Total / Implied	**1,445**	**9.2x**	**10.1x**	**11.1x**	**13,235**	**14,613**	**15,991**

Phase 1 MLP: Cove Point Import incremental dropdowns through yearend 2016 followed by Blue Racer and Cove Point dropdown in 2017

LP Distribution Equity Value NPV				6,035	$	10.41
GP Distribution Equity Value NPV				2,199	$	3.79
Incremental NPV Phase 2 and Long-Haul Pipeline Dropdown into MLP 2018	$ 4,529	probability	50%	2,265	$	3.91
Total Equity Value of MLPs				**10,499**		
add: NPV of 2016 cash flows from Cove Pt Import Prior to Drop Down				182		
less Total Dominion net debt				(22,767)		
netting VEPCO-associated debt				10,633		
netting VEPCO debt allocated to Hold Co				2,373		
netting MLP related debt (Cove Pt Import/Blue Racer-Only)				1,491		
netting Gas LDC-associated debt				1,098		
Net Energy/Generation Debt				(7,172)		
add: NPV of Merchant Generation Hedges				(188)		
Dominion Energy, MLP, Merchant Generation, and Retail				$ 19,642	$ 17,933	$ 22,398
Current Number of Shares outstanding				580	580	580
Dominion Energy, MLP, Merchant Generation, and Retail per Share				**$ 33.90**	**$ 30.95**	**$ 38.65**

Dominion Delivery	**Net Income**	**P/E Multiple**					
Electric	378	15.7x	16.7x	17.7x	5,944	6,323	6,701
Transmission	269	16.7x	17.7x	18.7x	4,491	4,760	5,029
Dominion Generation-Utility	939	15.7x	16.7x	17.7x	14,768	15,708	16,647
Total VEPCO Net Income	**1,586**	**15.9x**	**16.9x**	**17.9x**	**25,204**	**26,790**	**28,377**
Gas Distribution LDCs							
East Ohio	137	16.7x	17.7x	18.7x	2,299	2,436	2,574
Hope Gas	10	16.7x	17.7x	18.7x	165	175	185
Total Gas Distribution Net Income	**147**	**16.7x**	**17.7x**	**18.7x**	**2,464**	**2,611**	**2,759**
Current Number of Shares outstanding					580	580	580
Dominion Regulated Utilities SOP Value ($/sh)					**$ 47.75**	**$ 50.74**	**$ 53.73**
Total Equity Value per Share					**$ 81.64**	**$ 81.68**	**$ 92.38**

EPS by Segment	2012A	2013A	2014E	2015E	2016E	2017E	2018E
Regulated Utility	5.50	4.80	5.03	5.23	5.39	5.57	5.76
EWC/Nuclear	1.49	1.47	2.13	0.73	0.69	0.26	0.21
Other	(0.76)	(0.91)	(1.10)	(0.96)	(0.92)	(0.96)	(1.00)
Consolidated	6.23	5.36	6.05	5.00	5.16	4.87	4.98
Previous	6.23	5.36	6.05	4.87	4.94	4.52	
Guidance Range		4.60-5.40	5.55-6.75				
Consensus			6.04	5.12	5.11	5.23	

All figures in US $ million except per share data	2016E NI/EBITDA	EV/EBITDA and P/E Multiple					
		P/E Multiple			Equity Value		
	2016 EPS	Low	Base	High	Low	Base	High
		2016 Peers	14.4x				
Regulated Utility (Consolidated)	5.39	12.4x	13.4x	14.4x	66.88	72.28	77.67
Parent Preferred Income	(0.39)	12.4x	13.4x	14.4x	(4.89)	(5.28)	(5.67)
Other Parent Exp (non-Pfd)	(0.15)	12.4x	13.4x	14.4x	(1.83)	(1.98)	(2.13)
Utility Value: T&D Segments	**4.85**	*12.4x*	*13.4x*	*14.4x*	60.16	65.02	69.87
Total Utility Equity value per share					**$60.16**	**$65.02**	**$69.87**

EWC Value is a Proxy for NPV of Hedges / Indian Point		EV/EBITDA Multiple			Enterprise Value		
	2016 Adj. EBITDA	Low	Base	High	Low	Base	High
Nuclear and Wholesale Gen	560	3.0x	4.0x	5.0x	$1,681	$2,241	$2,801
Hedges	6	3.0x	4.0x	5.0x	17	22	28
Total / Implied	**566**	*3.0x*	*4.0x*	*5.0x*	**$1,697**	**$2,263**	**$2,829**
Parent + EWC Debt						(3,041)	
Less: Parent + EWC Cash						152	
FCF through end '15						497	
Net Debt (Parent+EWC)						**(2,391)**	
Add/(Subtract): Hedge Value NPV						21	
Subtract: NYPA Value Sharing payment (expires 2014)						(72)	
Merchant Generation Equity Value/(Drag)					**(672)**	**(178)**	**459**
Current Number of Shares outstanding					179	179	179
Merchant Generation Equity value per share					**($3.76)**	**($1.00)**	**$2.57**
Total Equity Value per Share					**$56.40**	**$64.02**	**$72.44**

Cc: 'Michael Beck'[mike.beck@mjbeckconsulting.com]
From: Zimbardo, Paul
Sent: Thur 5/15/2014 2:23:02 PM
Subject: UBS Access: Market Monitor's View - Interpreting PJM Capacity Results

2) Market Monitor's View: Interpreting PJM Capacity Results

When? Wednesday, May 28th @ 3 pm ET

Who? Joseph Bowring, PJM's Independent Market Monitor, Monitoring Analytics

Topics?

Joe will dive deep into bidding behavior dynamics and the impact of price caps in the latest auction. We believe this is key for the likes of FE and EXC, which we perceive have limited appreciation potential and were negatively impacted last year.

Dial-In?

Participant Dial in:

Toll Free: 800 952 3470

Toll: +1 212 271 4651

Passcode: 21716706

Replay Info

Toll Free: 800 633 8284

Toll: +1 402 977 9140

Passcode: 21716706

To: Hewitt, Julie[Hewitt.Julie@epa.gov]; Southerland, Elizabeth[Southerland.Elizabeth@epa.gov]; Stoner, Nancy[Stoner.Nancy@epa.gov]; Kopocis, Ken[Kopocis.Ken@epa.gov]; Zipf, Lynn[Zipf.Lynn@epa.gov]
Cc: Skane, Elizabeth[Skane.Elizabeth@epa.gov]
From: Tarquinio, Ellen
Sent: Tue 5/27/2014 5:54:17 PM
Subject: RE: Last minute add on Admin. trip to MN

Wonderful, thank you very much Julie for checking and for this information on the Black Dog plant. I'll add that as a FYI to the materials for this meeting.

Thanks again for the quick response!
Ellen

Ellen Tarquinio
Special Assistant
Office of the Administrator
WJC North 3313
202-566-2267

-----Original Message-----
From: Hewitt, Julie
Sent: Tuesday, May 27, 2014 1:18 PM
To: Southerland, Elizabeth; Stoner, Nancy; Tarquinio, Ellen; Kopocis, Ken; Zipf, Lynn
Cc: Skane, Elizabeth
Subject: RE: Last minute add on Admin. trip to MN

We double checked the record and came up with no issues.

Black Dog is not a small plant from a cooling water perspective (400 mgd), so they'll face the additional entrainment permit application requirements that larger withdrawing facilities have.

-----Original Message-----
From: Southerland, Elizabeth
Sent: Tuesday, May 27, 2014 12:36 PM
To: Stoner, Nancy; Tarquinio, Ellen; Kopocis, Ken; Zipf, Lynn; Hewitt, Julie
Cc: Skane, Elizabeth
Subject: RE: Last minute add on Admin. trip to MN

I am also not aware of any issues from that part of the country.

-----Original Message-----
From: Stoner, Nancy
Sent: Tuesday, May 27, 2014 12:20 PM
To: Tarquinio, Ellen; Southerland, Elizabeth; Kopocis, Ken; Zipf, Lynn; Hewitt, Julie
Cc: Skane, Elizabeth
Subject: Re: Last minute add on Admin. trip to MN

I am not aware of any concerns.

From: Tarquinio, Ellen
Sent: Tuesday, May 27, 2014 11:30:01 AM
To: Southerland, Elizabeth; Stoner, Nancy; Kopocis, Ken; Zipf, Lynn; Hewitt, Julie
Cc: Skane, Elizabeth
Subject: FW: Last minute add on Admin. trip to MN

Hi Betsy and all-

A last minute trip was just added to the Administrator's visit to MN tomorrow. She is meeting tomorrow morning at 10:30a with the Mayor of Burnsville and representatives from Xcel Energy and Dakota Electric to discuss issues impacting Burnsville Black Dog Plant and OW's 316(b) and OAR's upcoming 111(d) rules. The main focus will be 111d so Oar is scrambling on the same request for their side.

This email is to first flag for OW that this meeting is occurring and second ask if you are aware of any site-specific issues that that Administrator needs to be aware of before going into this meeting with these participants?

Thanks!

Meeting Attendees:

City of Burnsville:
Mayor Elizabeth Kautz
Heather Johnston, City Manager
Steve Albrecht, Director of Public Works Terry Schultz, Director of Parks, Recreation and Natural Resources Marty Doll, Communications Coordinator

Xcel Energy:
Brian Behm, Black Dog Power Plant Site Director Terry Coss, Director, Environmental Services Jack Ihle, Director, Environmental Policy Michelle Swanson, Community Relations & Economic Development

Dakota Electric:
Greg Miller, CEO
Jon Brekke, Great River Energy

Ellen Tarquinio
Special Assistant
Office of the Administrator
WJC North 3313
202-566-2267

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To: Southerland, Elizabeth[Southerland.Elizabeth@epa.gov]; Stoner, Nancy[Stoner.Nancy@epa.gov]; Tarquinio, Ellen[Tarquinio.Ellen@epa.gov]; Kopocis, Ken[Kopocis.Ken@epa.gov]; Hewitt, Julie[Hewitt.Julie@epa.gov]
Cc: Skane, Elizabeth[Skane.Elizabeth@epa.gov]
From: Zipf, Lynn
Sent: Tue 5/27/2014 5:18:13 PM
Subject: RE: Last minute add on Admin. trip to MN

Julie is triple checking that there are no issues and will get back to you shortly.

Lynn Zipf, Deputy Director
Engineering and Analysis Division
Office of Science and Technology
Office of Water

EPA West Room 6233A
(202) 564-1509

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From: Southerland, Elizabeth
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Greg Miller, CEO
Jon Brekke, Great River Energy

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202-566-2267

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From: Paul.Zimbardo@ubs.com
Sent: Tue 5/27/2014 12:56:10 PM
Subject: UBS: What did the Street Miss on the PJM Auction?
UBS Access: PJM's View - Interpreting PJM Capacity Results
Julien Dumoulin-Smith.vcf
disclaim.txt

US Electric Utilities & IPPs: What did the Street Miss on the PJM Auction?

Click here for the full report

As a reminder, we are hosting a call *Today* at 12PM with Andy Ott, Executive Vice President of Markets at PJM

Dial-in: **Non-Responsive**

We and Street under-estimated the shift towards more aggressive bidding

We attribute much of the 'recovery' in prices in the latest PJM capacity auction for 2017/18 to $120/MW-day (up from $59/MW-day last year) to a significant shift in bidding strategy, with ~9.7 GW of capacity opting not to clear. With no significant new EPA rules, we attribute much of the decline in generation to more aggressive bidding strategies, likely with EXC and NRG (the two largest generators in PJM) opting to bid in their portfolio at higher prices, given lower historic energy prices; bidding in these full costs (ACRs in PJM lingo) was discussed explicitly by EXC as part of its efforts to more rationally bid its nuclear portfolio. Meanwhile, we suspect NRG has opted not to clear much of the EME Midwest Gen portfolio due to IL MPS standards, set to ratchet up for the portfolio in 2017 to yet a crucially tighter SO_2 requirement. We also believe FE opted not to clear ~half of its capacity in the ATSI zone, continuing this theme.

But who wins? Mostly EXC, NRG, FE, and DYN, but whole sector should benefit

Despite the lower MWs committed through the use of portfolio bidding, all four companies are among the biggest beneficiaries of the auction results. We suspect the entire sector will continue to benefit from the trade, however, more Eastern-oriented MAAC names could still be more muted in upside given the substantial announcement of new and converted gas-fired capacity.

What does this mean? Need to handicap how much capacity cleared

We believe an important lesson learned from the auction will be the handicap applied to the capacity cleared in the auction, with companies increasingly needing to disclose how much capacity they have cleared; many investors have historically largely assumed the bulk of any IPPs portfolio was sold into the auction. We suspect a meaningful reduction to both NRG's and EXC's portfolio could impede the Day 1 'upside' from the strong $120/MW-day clearing price. Specifically, we flag EXC did not clear ~4GW of its nuclear portfolio (incl. Quad Cities, Byron, and Oyster Creek). We attribute the bulk of the uncleared capacity to the two largest market participants who have clear incentives to keep pricing higher). Meanwhile, we suspect others (PPL, DUK, AEP, AES) continued to clear the bulk of their capacity in anticipation of a sales processes.

Consolidation should only further drive portfolio bidding strategies in PJM

We believe the current trend of leveraging portfolio bidding strategies to drive upside in auction results is likely to only continue in future auctions, as the sector is poised to see substantial consolidation in the PJM footprint in the coming year. We see these added 'synergies' as further bolstering the argument for consolidation in the near term – and outside of any contemplated math disclosed by companies. Specifically, we see sale (consolidation) of Ohio's merchant portfolio to a single entity as enabling further upward pressure on the RTO region; we continue to see DYN as the most likely consolidator.

Top of the Power Cycle in PJM Taking Shape

Following the latest auction results, we believe the latest rally in power equities could yet continue through the balance of the year. While we continue to see upside to forwards as liquidity is brought to bear on 2015 forwards for summer, we worry about what the outlook will be as investors peer beyond 2015 given the continued wave of new gas plants suggests we may well be approaching the 'top' of the power cycle across the PJM market in the coming 18 months. We suspect this summer and next summer will prove crucial for generators seeking to extract rents on the back of coal generation retirements prior to new gas entrants capturing market share. As such, we think we're not quite at the top of the Power cycle– rather – this appears to be a 2015 event. The thesis for power beyond this period remains predicated on the ability for incremental natural gas usage to have a positive feedback effect on overall gas prices—as we believe new gas fired generation will largely drive a backwardated view of heat rates in PJM. The latest auction only reiterates our view that a mini-boom in gas construction/conversions will continue, with still meaningful capacity in the wings to clear in future years.

2014 and 2015 appear to be the top of the power cycle
The latest auction provides comfort PJM pricing is still intact – for now
Mismatch of timing of coal retirements and new gas gen creates boom-bust in PJM

What's next after the auction? Focus on M&A and EPS revisions.

Seeing the auction as a 'relief' for many investors, we suspect EPS revisions will continue to provide a positive tailwind to power equities, albeit slowing a bit given weakness in power in recent days. We suspect the trade towards M&A will once again take the lead. We reiterate Dynegy as favorite power levered name – not just on its meaningful (and typically under-stated exposure) to the auction, but also the lever to the continued consolidation thesis. With the auction in the rear view mirror, we would expect initial short lists to be released via media outlets in the weeks ahead on portfolios for sale—specifically AES (DPL) as well as Duke. The fate of AEP's assets appear tied to success in implementing a PPA rider through its ESP filing. Finally, we suspect investors could yet see relief in investing in PPL for a spin/sale of its own Supply business; we believe any transaction (spin) without meaningful synergies could be a bit disappointing to Street expectations though.

Positive EPS revisions are relevant for names like DYN, EXC, NRG, and PPL among others
M&A will primarily benefit DYN, but also PPL

Where are we more comfortable for the time being?

In the near term, we reiterate our belief that [gas] constraints will remain the theme du jour in power, as tremendous gas price basis is likely to persist for quite some time in the New York and New England markets. We sense delays in gas pipeline construction as enabling further winter price spikes for Winter 2015 and 2016. This continued volatility complements our more constructive view on power through the medium term. We suspect bottlenecks, particularly into New England could yet last late into the decade depending on the success of NESCOE's efforts in procuring new gas pipe on socialized basis.

Gas constraints in the Northeast appear poised to remain for longer

What about the economics of power? Upside is heading Westwards.

Every dog has their day. We believe the 'next' power trade that could yet emerge late in the decade revolves around a further iteration of coal regs focused on retrofitting or retiring the last big untouched coal portfolios – The PRB plants. We suspect Regional Haze requirements coupled with price SCR retrofits could yet drive the 'next' trade in to the ~2020 timeframe. Moreover, Illinois state regs at this point in time will drive further DYN and NRG PRB units out of the market, tightening in 2018-2020E. While a bit too long term for many, this emerging thesis focus bears yet further scrutiny under any focus on carbon reductions.

As Appalachia's 'end game' appears closer – longer-term focus will shift towards Western PRB retirements

What to make of the coming Court decision on DR: the next big quagmire.

Following the Court of Appeal's last minute decision on Friday to relegate demand response as a 'retail' product – and outside of the jurisdiction of FERC – at least for the purposes of energy markets, we flag FE has filed with FERC for an emergency order rejecting the outcome of the PJM capacity auction results from Friday on the grounds that Demand Response can no longer participate in the RPM market. While we see low likelihood to a revision of the latest results given the uncertainty involved, we do see credibility that there could yet be fundamental reform on how Demand Response is integrated into the markets (initially energy, but could very well entail capacity reform as well).

The courts pursued the "nuclear" option for Demand Response industry on Friday
This is a potential major change to power markets- upside?

Sensitivity Tables & Views from PJM Auction

We include a brief assessment of the PJM auction, by impacted equity. We flag that **NRG**, **Exelon**, **FirstEnergy**

and **Dynegy** appear to be the most positively impacted by the results. While all power names are largely positively benefitted, we see PPL as among the least given the likely continued expansion of new gas plants in/near its service territory of gas plants. Meanwhile, we temper our view of PSEG to reflect this concern of continued gas plant expansions as well.

Figure 1: Auction Impacts by Equity – Our View on the Auction

	Positive /Negative /Neutral?	RTO (MWs)
IPPs		
AES (via DPL)	Mild Postive	3,818
DYN (includes IPH Imports)	Very Positive	2,700
CPN	Mild Postive	4,424
NRG (Classic, GenOn, EME) w/ ~3GW haircut	Very Positive	12,136
Competitive Integrated		
EXC (w/o ~4GW Nukes Not Clearing)	Very Positive	20,914
FE (W/o ~3.5GW of coal in ATSI)	Very Positive	10,568
PEG	Positive	3,933
PPL	Mild Postive	9,961
More Regulated		
AEP	Positive	8,668
DUK	Mild Postive	6479
Total Owned by Generators in PJM		

Source: PJM, FactSet, and UBS estimates; approximate capacity.

We caution the above exercise is a simple screen using the baseline expectation for RTO to clear at $80/MW-day, vs. the actual result of ~$120/MW-day, a $40/MW-day positive relative to Street consensus into the event (per our previous survey results). We did not parse out MAAC prices separately, but note that the survey auction results here expected ~$95/MW-day muting the uplift, particularly with the bulk of the new capacity continuing to be located in this region (hence our muted view on PPL relative to others).

Figure 2: Price Expectations for Auction vs. Actual ($/MW-day)

	Price- 2016/2017	Expectations- Survey Results	Actual Price for 2017/18	Delta
PS	$ 219	$ 165	$ 215	$ 50
MAAC	$ 119	$ 95	$ 120	$ 25
RTO	$ 59	$ 80	$ 120	$ 40

Source: PJM, UBS Survey and UBS estimates

Cleared Prices from the Auction:

We include cleared prices from the auction below, with just the PSEG (and PS-North) region of PJM clearing separately relative to previous auction datapoints. While we suspect capacity prices remain structurally under

pressure in future years (seeing only an acceleration of late in interest for new gas builds), we see continued reform efforts and the potential for massive demand response overhaul to drive another positive data point next year.

Figure 3: Summary of PJM Capacity Auction Results

	2013/14	2014/15	2015/16	2016/17	2017/2018	UBSe 2017/18	Survey 2017/18
Resource Clearing Prices ($/MW-day)							
RTO	$27.73	$125.99	$136.00	$59.37	$120.00	$70.00	$75.00
EMAAC	$245.00	$136.50	$167.46	$119.13	$120.00	$70.00	$90.00
SWMAAC	$226.15	$136.50	$167.46	$119.13	$120.00	$70.00	$90.00
MAAC	$226.15	$136.50	$167.46	$119.13	$120.00	$70.00	$90.00
DPL-S	$245.00	$136.50	$167.46	$119.13	$120.00	$70.00	$90.00
PS-N	$245.00	$225.00	$167.46	$219.00	$215.00	$200.00	$165.00
PSEG	$245.00	$136.50	$167.46	$219.00	$215.00	$200.00	$165.00
PEPCO	$247.14	$136.50	$167.46	$119.13	$120.00	$70.00	$90.00
ATSI			$357.00	$114.23	$120.00	$70.00	$83.00
Reserve Margin	20.2%	19.6%	20.2%	21.1%	19.7%		

Source: PJM and UBS estimates/survey results

Aggressive bidding strategies drive up RPM auction results

What was the secret sauce to the latest auction? Nuclear and coal plants exercising their ability to bid in 'higher' prices to keep prices high. This is effectively a one-time lever large incumbents could use to drive prices higher, leveraging the fact that their bidding flexibility under PJM's tariff is dictated by 3-year historic energy revenues (2011-2013), which are quite depressed, enabling incumbent generators to recover substantially higher prices from the capacity auction.

Figure 4: Actual vs UBSe BRA Model Delta's - How to Reconcile to the higher auction results?

	Actual (MW)	UBSe (MW)	Diff (MW)		Impact ($/MW-day)
UBSe RTO Assumption				**$**	**72.87**
Deltas					
New Gen	5,387	2,573	2,814	$	(20.99)
Gen Reduction/Bidding Strategies	(9,760)	(4,032)	(5,728)	$	42.73
Uprates	474	143	331	$	(2.47)
Reactivations	991	-	991	$	(7.39)
DR Limited	(7,527)	(6,387)	(1,140)	$	8.50
DR Ex Sum	4,693	5,361	(668)	$	4.98
DR Annual	1,401	(89)	1,489	$	(11.11)
Imports	(2,957)	(500)	(2,457)	$	18.33
EE	222	195	27	$	(0.20)
UBSe RTO outcome per model with corrected inputs	**(7,078)**	**(2,736)**	**(4,342)**	**$**	**105.26**
Steeper supply curve				$	14.74
Actual Result				**$**	**120.00**

Source: PJM RPM results, UBS estimates

Modelling out the portfolio bidding upside: How to reconcile our estimates on the auction vs. actual results

Our supply/demand model of RPM auction results uses a supply curve based on outcome sensitivities for various bidding scenarios provided by PJM for the prior-year's auction. As a result of interaction with the administratively-set demand curve (provided through the release of updated parameters on May 7), the price outcome was sensitive by ~$7.50/MW-day per 1 GW change in supply. The 4.3 GW difference in actual results from our assumptions therefore accounts for ~$32 of the higher actual result (we would have been at $105.26 instead of $72.87). The remaining $14.74 difference is the result of a steeper supply curve present in this year's auction compared to last year's, which is not altogether too surprising given that the greatest impact on higher results was 5.7 GW of aggressive bidding behavior that likely knocked out (withheld) marginal baseload coal at the bottom of the stack. Also, as illustrated in the table above, the other most significant impact on the auction was the surprisingly severe 2.4 GW reduction in imports that pushed the price up at least $18.33. Otherwise, our assumptions for demand response (DR), energy efficiency, new generation, and uprates were all reasonably close.

Withholding strategy math works up to a point

In the table below, we calculate the net revenue uplift from hypothetical withholding scenarios for EXC (we do not intend to imply that this behavior took place as described). As illustrated, maximum benefit can be obtained by withholding just enough supply to drive prices received for the remaining fleet up without eliminating too much revenue and reducing the overall benefit. In the first column, the maximum uplift is obtained by withholding 4,457 MW of a 25,000 MW fleet (roughly consistent with the 4.225 GW of capacity disclosed as being withheld – Quad Cities, Byron, and Oyster Creek).

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It's important to note that the outcome is highly dependent on the initial assumption for where the auction would have come out at without any withholding. Lower baseline assumptions generally incentivize more withholding since less revenue is removed by the withheld assets (less risk in the strategy) while overall net uplift increases as well. In our example, we use $60/MW-day as this baseline assumption. Withholding 4,457 MW thus results in a reduction of $267M of revenue but the incrementally $33.25 higher cross on the supply curve results in $1.9B of revenue for the remaining 20,543 MW fleet that's bid into the auction for a net uplift of $148M. The second column shows how increasing the withheld MWs beyond 4,457 MW results in a reduction of net benefit as incremental price improvement diminishes in relation to lost revenue.

Exelon's new bidding strategy appears entirely consistent with PJM rules – and reflects continued challenges to its nuclear portfolio

At 8,914 MW withheld (36% of the fleet), there is no net benefit at all (breakeven). Given that only a relatively small portion of the fleet is required to be withheld for maximum benefit, we would conclude that EXC, at any rate, has more than adequate market power to drive auction results through an aggressive bidding strategy. Given that the actual RPM results included over 9 GW of reduced generation as a result of bidding strategies, we would have to conclude that more than one major auction participant used these strategies simultaneously, likely resulting an even greater pricing and benefit for the remaining bid fleets than anticipated. While outright strategic collusion is prohibited, participants may have been "telegraphing" their intentions to each other more subtly in public comments from more than one company regarding potential retirements, seeking higher Avoided Cost Rates (ACR), etc., hence PPL's comments that the auction outcome was driven by Bidding Strategies this year.

Lastly, adding to future market power leverage, we continue to await FE's petition before FERC on permissible ACR calculation changes that would enable yet higher prices on many assets (particularly nuclear assets).

Figure 5: Calculation of Uplift from Hypothetical Withholding Scenarios ($M) for EXC

		EXC max uplift	EXC b/e
Fleet RTO MWs	(a)	25,000	25,000
Baseline RPM Price Assumption ($/MW-day)	(c)	$ 60.00	$ 60.00
Baseline Fleet Revenue Assumption ($M)	(e)	$ 1,500	$ 1,500
MWs Withheld	(b)	(4,457)	(8,914)
Baseline RPM Price Assumption ($/MW-day)	(c)	$ 60.00	$ 60.00
Reduction to Baseline Revenue Assumption ($M)	(f)	$ (267)	$ (535)
Incremental RPM Price Impact ($/MW-day)	(d)	$ 33.25	$ 66.50
Net Fleet Bid (MWs)	(a) - (b)	20,543	16,086
New RPM Price Assumption ($/MW-day)	(c) + (d)	$ 93.25	$ 126.50
New Net Revenue Outcome ($M)	(g)	$ 1,916	$ 2,035
Withholding Uplift $M	(g) - (f) + (e)	**$ 148**	**$ 0**

Source: UBS estimates

Other Auction Drivers to Consider:

New Gas Generation Additions are Meaningful as well

We include a summary of the new supply additions by type below, indicating that the latest auction saw the highest amount of new capacity additions (as well as specifically CCGTs) of any prior period, including last year's auction. We attribute the steam uptick primarily to coal-to-gas conversions, using existing boilers.

Figure 6: Latest Capacity Auction - New Resource Additions (Includes New Units, Uprates, and Reactivations)

Total New Resources	2013/14	2014/15	2016/2017	2017/2018	Cumulative	Fuel mix
Single-Cyle Turbine	385	213	608	203	4,245	16%
CCGT	764	650	4,380	5,210	13,434	50%
Diesel	6	45	42	130	437	2%
Hydro	-	174	7	112	690	3%
Steam (coal)	240	139	1,564	1,158	5,721	21%
Nuclear uprates	47	107	103	11	1,174	4%
Solar	10	35	34	27	107	0%
Wind	285	220	69	2	1,017	4%
Total	1,738	1,583	6,806	6,854	26,824	100%

Source: PJM and UBS Estimates

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The key question remains how much of this capacity will ultimately get built. We look for this question to get resolved in coming months as many of these generators come to market to seek both equity and debt financing (few likely have financing already in place).

It remains unclear how much of the capacity cleared in prior auctions has actually begun development – and to what extent any of this capacity was ultimately 'pulled out' of the market in the latest reversal of new generation (a potential); we look to an upcoming fuel report from PJM on the breakdown of cleared capacity to provide some initial clues.

We flag that much of this capacity is actually in the EMAAC and MAAC portion of PJM. We suspect energy prices could be disproportionately impacted in the eastern footprint of PJM, pressuring 2017 and 2018 forward power prices.

Figure 7: How much new generation cleared the auction? A Lot, in all markets.

This Year	Cleared 2017/18			Offered 2017/18			Uncleared
Region	Uprate	New	Total	Uprate	New	Total	Total
EMAAC	65	1,746	1,812	65	1,746	1,812	-
MAAC-only (excl EMAAC)	94	2,672	2,765	94	2,753	2,847	81
RTO-only (excl MAAC)	181	1,510	1,690	1,022	1,629	2,651	961
Total PJM Footprint	340	5,927	6,267	1,181	6,128	7,309	1,042

Last Year	Cleared 2016/17			Offered 2016/17			Uncleared
Region	Uprate	New	Total	Uprate	New	Total	Total
EMAAC	383	59	442	579	216	794	352
MAAC-only (excl EMAAC)	279	1,496	1,775	279	1,496	1,775	-
RTO-only (excl MAAC)	519	2,727	3,246	545	3,484	4,029	783
Total PJM Footprint	1,181	4,282	5,463	1,403	5,195	6,598	1,135

Source: PJM and UBS Estimates

It remains unclear precisely which units committed into the auction?

We include a list of known plants to us that are exploring new plants in the PJM footprint. We anticipate we could yet have missed some, particularly given the total quantity of capacity that sought MOPR exemptions for the latest round of additions (total of 11.4GW of new capacity granted, vs. 14GW requested for the latest auction). This 11.4GW is on top of the 7.8GW that didn't clear last year. Netting out the 6.3GW that cleared this year, we still see 12.9GW that has received MOPR approvals, but not yet cleared in the auction for a variety of issues. For example, we understand Panda's latest project in Maryland ran into permitting issues (Mattawoman), suggesting it did not clear – and could yet in future auctions.

Figure 8: More New Generation Still Lingers too?

MOPR Exemptions
2016/17
2017/18
Total Cleared in '16/17
Total Cleared in '17/18
Remaining Approved New Gen t

Source: PJM and UBS estimates

Figure 9: Summary of Potential New Generation Resources bid into auction

Project	Region	Fuel	MW	Announced	Est Cost	Projected Completion
MAAC						
Wildcat Point / ODEC	MD (PJM)	Natural Gas	1,000	April '13	$1,100Mn	2017
Mattawoman / Panda	MD (PJM)	Natural Gas	829	August '13	$945Mn	July 2017
Keys Energy Center	MD (PJM)	Natural Gas	735		$750Mn	June 2016
Woodbridge	NJ (PJM)	Natural Gas	700	2011	$845Mn	January 2016
Good Spring	PA (PJM)	Natural Gas	330	December '12	$730Mn	2016
Berks Hollow	PA (PJM)	Natural Gas	855		$750Mn	June 2016
Garrison II	DE (PJM)	Natural Gas	309	February '12	$340Mn	TBD
Lebanon Valley	PA (PJM)	Natural Gas	900		$1,045Mn	2017
Lackawanna	PA (PJM)	Natural Gas		August '13	$500Mn	TBD
RTO						
Oregon Clean Energy	OH (PJM)	Natural Gas	799	September '12	$860Mn	May 2016
Stonewall	VA (PJM)	Natural Gas	750	September '12	$600Mn	March 2017
Carroll County	OH (PJM)	Natural Gas	700	July '13	$800Mn	2017
St. Joseph's Energy Center	IN (PJM)	Natural Gas	673	2011	$740Mn	Sept 2016
Nelson	IL (PJM)	Natural Gas	584	December '13	$630Mn	Jan 2015
Deerfield	MI (PJM)	Natural Gas	400			
Westmoreland	PA (PJM)	Natural Gas	900		$1,023Mn	2016
Rolling Hills Uprate	OH (PJM)	Natural Gas	564		N/A	2016
Total Potential MAAC			**6,768**			
Total Potential RTO-Only (Excl. MAAC)			**5,370**			
Total Cleared MAAC 2017/18			**4,577**			
Total Cleared RTO 2017/18			**1,350**			

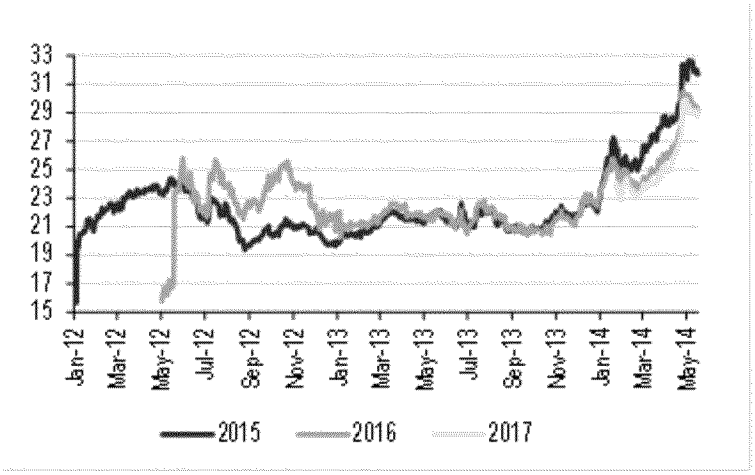
Source: PJM, Company Filings, and UBS estimates

But why did all this new capacity show up? Much higher spark spreads.

We flag that spark spreads, when using the Dominion-South delivery point versus PJM West have continued their upward trajectory suggesting new entrant economics are even better this year than last.

The big question for new entrants remains how willing they are to believe that gas will remain cheap (both nominally and on a relative basis versus Henry) by the time the plant is delivered (although initial ~5 year hedges on sparks enable financing today). That said, even hedges are not necessarily perfect in hedging exact gas price risk in a market with rapidly evolving gas price basis. We flag hedge effectiveness as a major recent issue for Northeast developers.

Figure 10: Robust Sparks have improved ~30% YoY due to cheap gas: PJM West-Dominion South Spark Spread on new 6.5 Heat Rate plant ($/MWh)



Source: Platts and UBS estimates

… And what to make of Demand Response Declining?

We flag that Demand Response also continued a modest slide too, with -1.2GW less clearing YoY, despite a total of -2.9GW less offered YoY. We attribute the recent declines in participation to continued efforts to increase the quality of demand response participating in the auction, further limiting the amount of Summer Extended and Limited products.

Could lower participation also signal some concern about future regs?

We attribute some further scaling back to the broader uncertainty of where further PJM reforms will go – and to what extent they could impact the incremental auctions for the 2017/18 delivery year.

What are notable datapoints in the DR zones?

1) We believe the upside from the PS zone can be attributed to a meaningful decline in PSEG zone DR participation, with -237MW cleared YoY.

2) Decline in PPL zone of -307 MW cleared likely reflects an abundance of DR in this region relative to PJM's decision to model out this region separately. As is illustrated in the final pricing, DR did not sufficiently exit the market in this zone to limit price compression

Figure 11: Demand Response and Energy Efficiency Changes YoY

		Offered MW			2017/18 Cleared MW			Delta vs. Last Auction		
Region	LDA	Demand Response	Energy Efficiency	Total	Demand Response	Energy Efficiency	Total	Offered Δ vs. '16/17	Cleared Δ vs. '16/17	Uncleared
EMAAC	AECO	134.8	0.8	135.6	134.7	0.8	135.5	(56.2)	(38.5)	0.1
	DPL	372.9	29.0	401.9	369.7	29.0	398.7	(91.9)	(62.0)	3.2
	JCPL	169.8	7.1	176.9	159.4	7.1	166.5	(85.3)	(61.1)	10.4
	PECO	494.1	24.8	518.9	480.0	24.8	504.8	(88.6)	(37.8)	14.1
	PSEG	392.7	18.7	411.4	388.4	17.6	406.0	(240.0)	(236.6)	5.4
	RECO	3.4	-	3.4	3.4	-	3.4	(9.0)	(6.7)	-
	Sub-Total	1,567.7	80.4	1,648.1	1,535.6	79.3	1,614.9	(571.0)	(442.7)	33.2
								-	-	
PEPCO	PEPCO	619.8	104.2	724.0	608.4	104.2	712.6	(43.5)	(34.8)	11.4
								-	-	
MAAC	BGE	803.2	123.7	926.9	791.2	123.7	914.9	(168.0)	(146.6)	12.0
	METED	306.6	12.8	319.4	298.9	12.8	311.7	(99.3)	(12.3)	7.7
	PENELEC	367.7	12.9	380.6	356.8	12.9	369.7	(82.0)	(71.7)	10.9
	PPL	812.7	35.6	848.3	686.2	35.6	721.8	(223.3)	(306.6)	126.5
	Sub-Total	2,290.2	185.0	2,475.2	2,133.1	185.0	2,318.1	(572.6)	(537.2)	157.1
SWMAAC		1,423.0	227.9	1,650.9	1399.6	227.9	1,627.5	(211.5)	(181.4)	23.4
Grand Total MAAC		4,477.7	369.6	4,847.3	4,277.1	368.5	4,645.6	(1,187.1)	(1,014.7)	201.7
RTO	AEP	1,445.5	136.3	1,581.8	1,426.1	136.3	1,562.4	(257.7)	66.5	19.4
	APS	940.8	10.3	951.1	928.9	10.3	939.2	(13.2)	240.2	11.9
	ATSI	1,064.4	142.0	1,206.4	1,020.2	142.0	1,162.2	(913.2)	(846.3)	44.2
	COMED	1,499.6	583.3	2,082.9	1,478.1	583.3	2,061.4	(66.1)	398.5	21.5
	DAY	211.9	49.2	261.1	209.4	49.2	258.6	(53.3)	(1.1)	2.5
	DEOK	194.0	17.5	211.5	192.4	17.5	209.9	(189.1)	(99.7)	1.6
	DOM	1,157.8	20.7	1,178.5	1,141.1	20.7	1,161.8	(309.2)	12.8	16.7
	DUQ	161.9	10.6	172.5	161.4	10.6	172.0	(45.2)	24.6	0.5
	EKPC	140.1	0.5	140.6	140.1	0.5	140.6	3.8	140.6	-
	Sub-Total	6,816.0	970.4	7,786.4	6,697.7	970.4	7,668.1	(1,843.2)	(197.0)	118.3
Grand Total		11,293.7	1,340.0	12,633.7	10,974.8	1,338.9	12,173.1	(2,893.5)	(1,219.2)	460.6

Source: PJM and UBS Estimates

… And what about prices by Product? Not materially lower.

We flag the latest restrictions on Summer Extended and Limited did not substantially impact the auction results as the only region to see substantial price separation (downwards) for these products was the PPL region. We expect DR providers to continue to focus on expanding Summer Extended Products in future auctions to the extent to which this remains a lower-cost DR product that can be supplied to the market at (or near) that of the overall clearing price.

Figure 12: RPM Results, broken out by DR production and by region

DR Prices	2017/18
RTO	
Annual	$120.00
Summer Extended	$120.00
Limited	$106.02
PSEG	
Annual	$215.00
Summer Extended	$215.00
Limited	$201.02
PPL	
Annual	$120.00
Summer Extended	$53.98
Limited	$40.00

Source: Company reports and UBS estimates

And then Transmission Imports Declined too…

Total cleared transmission imports were below those allowable at 4.5GW, even under the more restrictive regional cap of ~5.4 GW (and even lower than the RTO-wide formal cap is 6.5GW). We attribute the decline in cleared transmission to a combination of factors –including:

1) Transmission import caps, which effectively put substantial downward pressure on non-exempted capacity from participating in the auction;

2) Less capacity applying for the exemption, suggesting that generators did want to commit their capacity for protracted periods required under the exemption process. This would suggest a long-term mildly more bullish view for MISO and the Southeast. Our read remains that merchant generators and regulated utilities selling off-system capacity into the market did not want to commit for the long-term for fears that they could have a monetization opportunity if they were an IPP (back to a regulated utility), or for a regulated utility, concerns over whether regulators would demand this capacity back to serve native load.

We had thought the bulk of the 7.5GW of transmission imports would seek exemptions; this was clearly not the case.

3) Even those transmission imports that had secured exemptions, opted not to clear all of their capacity (we estimate 612 MW). This is primarily due to zero import prices exhibited in certain regions, as they were 'constrained' (see tables below for pricing). Further, with NRG likely bidding under a 'portfolio' approach given its size – and interest in saving the GenOn subsidiary – we believe it may have yet scaled back its capacity commitments.

It's notable that the two regions entirely saturated by Exempted capacity imports both cleared at $0/MW-day,

effectively committing the capacity for free [odd in our view]. Dynegy exports to PJM via West region 2, which cleared at the full price.

Figure 13: Digging into the Transmission Imports Math

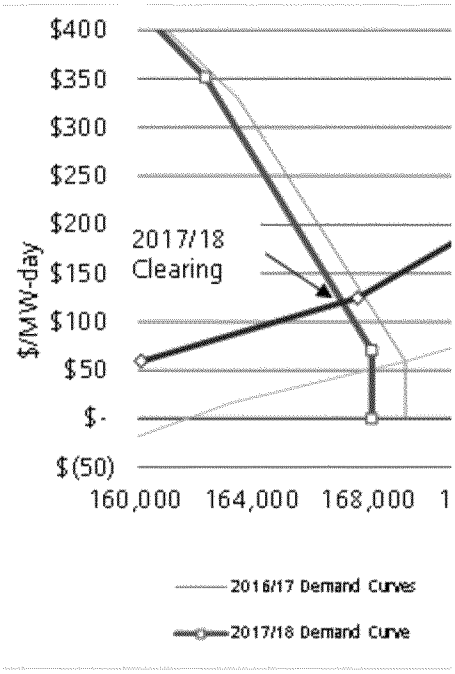
PJM Transmission Imports Math	
Exempted Transmission Imports	4
Exempted Transmission Imports - Cleared per PJM	-4
Remaining Imports by Region	
North (NYISO and ISO-NE)	
West 1 (MI and Northern MISO)	
West 2 (Southern IL / MISO)	
South 1 (TVA, etc)	
South 2 (Carolinas)	
Remaining under Zonal Caps	6
Total Exempted + Under Remaining Cap	**5**
Actually Cleared in 2017/18	**4**
Last Year Cleared	7
YoY Decline	2

Source: Company reports and UBS estimates

So what to the Supply and Demand Curves Look Like?

We include our final curves for 2017/18, with our best estimate of the supply curve. We flag the curve appears to have steepened for RTO versus the parameters released previously for the region as MAAC and ATSI were consolidated.

Figure 14: Supply and Demand Curves
for latest 2017/18 PJM capacity auction



Source: PJM and UBS estimates

What about the math on the rest of the world?

We include our final YoY adjustments to derive the price in the RTO region. We flag our final -1.975GW plug 'resolves' the shift in the curve shape, given RTO's combination with MAAC and ATSI regions in the latest auction.

Figure 15: Supply Shifts
YoY for 2017/18

RTO Supply Assumption
Retirements
Dynegy/PSEG Uprates
Supply Curve Adjustment
New Generation/CC Conv
DR MW (Annual)
DR Strategy Offset+Pri
DR MW (Extended Summe
DR MW (Limited)
Net DR Shift
Imports
Energy efficiency
Total
Outcome 2017/18 UBSe
Outcome 2016/17

Source: PJM and UBS estimates

What about the Companies? Specific Estimate Revisions.

-

AEP

The revenue uplift for AEP is ~$10Mn as the blended 2017 RTO price assumption increased ~$3/MW-Day, driving ~$0.01/sh EPS improvement. We believe AEP may very well have opted not to clear its Conesville plant in an effort to increase the credibility of the plant seeking a contract in Ohio (despite the latest setback in its ESP given negative staff reaction to PPA rider).

Figure 16: AEP Earnings Estimate Summary

EPS Contribution	2012A	2013A
Distribution Utilities	2.51	2.28
Genco	0.62	0.68
Transmission Projects	0.09	0.16
Corporate and Other	(0.13)	0.10
Total EPS	3.09	3.23
Growth Rate		*4.4%*
EPS CAGRs		*2013-2016*
Guidance		$3.05 - 3.25
Consensus		*3.19*
Prior Estimate		3.23
Regulated-Only EPS		*2.55*

Source: Company Filings, FactSet, and

UBS Estimates

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Calpine

We suspect Calpine cleared the bulk of its capacity, however, overall EBITDA was largely unchanged YoY, although is a modest positive revision vs. our expectations of $80/MW-day originally. We look for shares here to respond positively to the signal of strong new market entrant seen in the PJM auction, reaffirming the value of CCGT units in the PJM footprint.

Calpine 2017E capacity revenue increases 18% from $200Mn to ~$235Mn which flows directly to Adjusted EBITDA; however, this is offset by declines in power pricing.

Figure 17: CPN Earnings Estimate Summary

Calpine Adj. EBITDA UBSe	2012	2013	
West	638	684	
Texas	323	356	
Southeast	102	80	
North	590	615	
Other	33	29	
Corporate Allocation	63	66	
Total EBITDA	1,749	1,830	
Guidance	*1,800-1,825*		*1,90*
Street Consensus (5/24/14)			
Previous UBS			

Source: Company Filings, ThompsonReuters, and UBS Estimates

$35Mn capacity revenue increase in 2017.

Dynegy

The PJM capacity uplift does help 2017e adjusted EBITDA but Dynegy remains among the most sensitive to power prices and our adjusted EBITDA is declining 12/13% in 2015/2016 due to the pullback of power. Consensus estimates have climbed significantly in the past two weeks and we still see a positive outlook for shares despite the recent decline in estimates.

Despite owning just two CCGTs (~2GW) and having ~840 MW of transmission import rights into PJM from the IPH portfolio, the company remains among the most sensitive to the uplift in the auction.

Figure 18: Dynegy estimates update

Pro-Forma Dynegy-Ameren Estimates	2013A
Midwest (Dynegy Inc.)	50
West	95
Northeast	137
Illinois Power Holdings (Standalone)	12
PRIDE Reloaded (Mostly Gross Margin/Not O&M)	
Consolidated G&A	(76)
Adj. EBITDA (Standalone DYN + IPH)	**219**
UBS Prior	
Consensus (5/24/14)	
Guidance	200 - 225
CoalCo	(10) - 15
GasCO	280 - 295
Adj. EBITDA w/o G&A Allocation	**283**
CoalCo	(14
GasCo	296
Illinois Power Holdings	

Source: Company reports and UBS estimates

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Exelon

For EXC's fleet we had assumed $703Mn of capacity payments in 2017 based upon an $80/MW-Day clearing price which increases significantly to ~$900Mn, driving ~$0.15/sh EPS improvement. We suspect some (up to ~5GW) did not clear in either the Eastern or Western footprint, significantly muting this uplift, with 4.225GW of this from its nuclear portfolio not clearing. This is offset partially for our estimates by declines in power prices since our previous update at the start of May (ex. PJM-West ATC 2017 declined ~$1.75 MTD).

Figure 19: EXC Earnings Estimate Summary

Exelon Consolidated EPS	2012A	2013A
PECO	0.47	0.46
ComEd	0.47	0.49
BGE	0.06	0.23
Exelon Generation	1.89	1.40
Other	(0.04)	(0.07)
Total EPS	**2.85**	**2.50**
Guidance		
Consensus		
Prior UBS estimates		*2.50*
Regulated EPS		1.17
Regulated Guidance		

Source: Company Filings, FactSet, and
UBS Estimates

What units didn't clear? We know at least some of the nuclear units didn't

(1) Quad Cities: 1.3GW owned by EXC (75% of the total 2-unit plant)

(2) Byron: 2.3GW plant. This 2-unit site was discussed by

(3) Oyster Creek: 625 MW in EMAAC. It appears the company could yet retire the unit early given current power market and incremental auction capacity trends (vs. its negotiated 2019 retirement with the state of NJ over 316(b) rule compliance).

We believe it is likely that Exelon did not clear additional units as well – details could yet be provided in the follow-up fuel report to be released by PJM in the week ahead.

FirstEnergy

FirstEnergy's fleet sees its 2017E capacity revenues increase $100Mn from $315Mn to ~$415Mn as a result of the increase from $80/MW-Day to $120MW-Day **(~$0.15/sh EPS impact),** again as mentioned with Exelon above, the increase in our 2017 estimates is halved by a modest reduction in power prices. The decline in power prices MTD has driven the ~4% reduction in our 2015/2016 estimates.

We continue to estimate FE cleared only a fraction of its existing supply in the ATSI zone, at just ~4GW, versus its total footprint of 7.6GW in the ATSI Zone. We suspect FE likely also moved not to clear some of its RTO capacity as well, seeing its overall footprint in the market at 13GW, sufficiently large as to warrant a portfolio bidding approach.

Figure 20: FE Earnings Estimate Summary

UBS Estimates	2013E	2014 Guidance	2014E	2015E	2016E	2017E	2018E
Energy Delivery	2.03	1.98-2.04	2.02	2.05	2.09	2.12	2.18
FirstEnergy Solutions	0.73	0.12-0.22	0.13	0.53	0.29	0.19	0.31
Transmission (ATSI, Trail, and OpCo's)	0.47	0.52-0.56	0.52	0.54	0.71	0.80	0.86
Other	(0.20)	(0.22)	(0.22)	(0.15)	(0.17)	(0.19)	(0.22)
Total UBSe EPS	3.04	2.40-2.60	2.45	2.98	2.92	2.93	3.13
Previous UBSe (except Guidance)		2.45-2.65	2.47	3.15	3.06	2.90	
Consensus			2.48	3.00	2.90	2.74	3.30

Source: Company Filings, FactSet, and UBS Estimates

We include our latest estimate of capacity payments for FE, which suggests payments reach a low in 2018. We suspect FE will continue to clear a limited quantity of MWs in future auctions.

Figure 21: FirstEnergy Gross Margin Composition by year

Gross Margin	2013	2014	2015	2016	2017	2018
Open Coal Energy Margins	322	393	635	638	707	715
Open Nuclear Energy Margins	730	761	877	905	933	943
Hedge Value (From Analyst Day+MtM Sinc	805	411	(255)	(144)		
Capacity Revenues	237	406	929	668	387	438
Marketing Margin (UBSe Retail Margins)	259	1	100	100	100	100
Gross Margin (Gen/Retail-Only)	2,352	1,972	2,285	2,167	2,126	2,197

Source: Company Filings and UBS Estimates

We include our updated EBITDA projections below. We suspect FE is at or below the low end of its 2015 EBITDA guidance range given the latest MtM effect of power forwards as well as reduced marketing ambitions – we look for an update (likely with a slightly lower range) in the coming quarter.

Figure 22: FirstEnergy EBITDA Composition

EBITDA	2013	2014	2015	2016	2017	2018
Open Fossil EBITDA	(74)	114	810	574	352	538
Open Nuclear EBITDA	41.12	169	329	245	276	320
Retail & Hedges EBITDA	1,262	332	(237)	(42)	102	(65)
FES Total	1,229	616	902	777	730	793
Adjusted EBITDA Guidance		615-655	$950-$1,050			

Source: Company Filings, FactSet, and UBS Estimates

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PEG

Our estimate of PSEG 2017e capacity revenues inched higher from $625Mn to ~$660Mn. We suspect PSEG continued to clear the bulk of its capacity in its region.

Figure 23: PSEG Earnings Estimate Summary

	2012A
PSEG Power	1.27
PSE&G	1.04
PSEG Enterprise & Other	0.13
Total	2.44
Prior	2.44
Consensus	
% Regulated	43%
Regulated EPS CAGR ('13-16')	
Guidance	$2.40-

Source: Company Filings, FactSet, and UBS Estimates

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PPL

Our estimate of PPL Energy Supply 2017e capacity revenues jumped from $322Mn to $400Mn. Given our expectations for a spin or sale of the Supply business, we suspect PPL cleared the bulk of its capacity despite the ability to bid in a materially higher ACR across its coal units (hence the reason why PJM appears to have opted to model PPL as a separate zone).

Notably, PPL Zone was the only region to have both Limited DR and Summer Extended clear at a separate price.

Figure 24: PPL Earnings Estimate Summary

PPL Corp. UBSe EPS	2013E	2014E
Energy Supply	0.39	0.11
UK Utilities	1.37	1.37
PA Electric Utility	0.32	0.38
Kentucky Utilities	0.48	0.43
Corporate	(0.11)	(0.06)
Total	**2.45**	**2.23**
Guidance Range	2.30-2.40	2.15 - 2.30
UK Utilities Guidance (July '13)	1.25-1.32	1.19-1.31
Prior UBSe	2.45	2.22
Street Consensus	2.45	2.24

Source: Company Filings and UBS Estimates

And digging into the PPL Supply portfolio, positive FCF remains, however, we suspect traditional EV/EBITDA multiples ascribe too much value to the segment given the more limited FCF profile of the assets.

Figure 25: PPL Supply – Updated Projections

PPL Supply Projections	2011A	2012A	2013A	2014E	2015E	2016E	2017E	2018E
Generation EBITDA	1,311	1,257	856	576	561	659	621	646
Nuclear D&A	119	112	132	148	152	157	161	166
Interest Expense -- PPL Supply Only	(160)	(160)	(153)	(118)	(118)	(118)	(118)	(118)
Taxes (Est.)	(515)	(255)	(138)	(39)	(31)	(64)	(55)	(67)
FCF pre-capex (proxy for FFO)	**755**	**953**	**697**	**567**	**564**	**634**	**609**	**627**
Growth/Other Capex								
Base Capex	507	197	197	101	100	250	250	250
Nuclear Fuel	152	159	161	158	160	160	160	160
Environmental	181	314	89	354	295	0	0	0
Other	0	230	253	(83)	(45)	20	20	20
Total Growth/Other Capex	**840**	**900**	**700**	**530**	**510**	**430**	**430**	**430**
Free Cash Flow	(85)	53	(3)	37	54	204	179	197
Debt Profile (incl. ST Debt Balance)	3,424	3,628	2,525	3,192	3,192	3,192	3,192	3,192
Cash	(379)	(413)	(551)	(588)	(642)	(847)	(1,026)	(1,223)
Net Debt	3,045	3,215	1,974	2,604	2,550	2,345	2,166	1,969
Equity Unit Conversions				978				
Sale Proceeds (Back to the parent)			895					
Colstrip Debt			273					
Maturities (From 1Q14 Slides)			438	303	304	354	4	403
Net Debt/EBITDA	4.0x	3.4x	2.8x	4.6x	4.5x	3.7x	3.6x	3.1x
FFO / Debt	22%	28%	25%	18%	18%	20%	19%	20%
Moodys Target for Supply			20%					

Positive Free Cash Flow Forecast

Source: Company reports and UBS estimates

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NRG

GenOn: How much capacity cleared – and potentially additions too?

We include our updated GenOn estimates below. Here too we have not discounted the total cleared. It remains unclear how much capacity on the GenOn side did not clear – we look to updates on the forward looking capacity revenue disclosures with 2Q results (we don't anticipate NRG will provide much clarity beyond this). Meanwhile, it is unclear to what extent the company was able to clear further capacity reactivations – specifically Shawville (PA) and Portland (NJ) as conversions using the existing steam boilers used for coal (they had been both slated to shut due to MATS compliance).

The latest auction appears positive for GenOn on paper – with supportive pricing and possibility of even newly reactivated capacity

That said, we see further gas plant additions, particularly in Maryland – both clearing in the latest auction as well as future potential plans as concerning over the future of the assets. It is also unclear if NRG continued to clear its Chalk Point and Dickerson units (despite its decision not to deactivate), seeing the broader uplift accruing to remaining units.

The longer-term outlook remains less clear for GenOn
Liquidity appears sufficient through medium term

Figure 26: GenOn segment – Revised with latest forwards & capacity payments (assuming cleared auction).

GenOn Mini Free Cash Flow	2013A	2014E	2015E	2016E	2017E	2018E
Beginning Cash Balance	825	760	674	771	801	855
EBITDA	482	548	568	534	559	626
Plus: Non-Cash Lease Amortization	80	80	80	80	80	80
Less: Minimum Lease Payment	(202)	(194)	(166)	(211)	(207)	(196)
Interest Expense	(205)	(262)	(262)	(262)	(262)	(282)
Maintenance Capex	138	115	115	110	115	115
Environmental Capex	118	142	7	0	0	0
Total Capex	256	257	122	110	115	115
Free Cash Flow	(101)	(86)	97	30	54	112
Ending Cash Balance	724	674	771	801	855	967

Source: Company reports and UBS estimates

… and how about EME's Midwest Generation portfolio?

We attribute a huge slug of the improvement in PJM to NRG's likely decision not to clear the bulk of its recently acquired Midwest generation portfolio as part of its EME acquisition. Given even the modest contemplated retrofits necessary to achieve compliance with IL MPS requirements, which ratchet up in 2017 for EME, we believe the company has likely opted to remove the plants – driving up broader capacity prices, a net benefit for its portfolio. We look for an update on total plant O&M and synergy contributions in coming quarters- as well as an overall portfolio update on unit plans.

What does NRG intend to do with EME? Synergies and plan has yet to be disclosed.

Dominion

The impact of the capacity estimates was largely immaterial; however, the power price improvement drove gains for Merchant Generation relative to our last commodity update. For example, 2016 Merchant Generation EBIT increased from $345Mn to $418Mn.

Improvement for Dominion driven by relatively stale commodity numbers relative to peers.

Figure 27: D Earnings Estimate Summary

2014 Guidance vs 2013 Actual Results and UBS 2014E Estimates by Segment (EBIT) using ABS								
		FY14 Guidance			UBS			
VEPCO	2013A	Low	High	2014 Mid	2014E	2015E	2016E	2017E
Electric Distribution	542	590	615	603	604	664	703	724
Electric Transmission	402	460	480	470	478	558	613	664
Utility Generation	1,293	1,435	1,485	1,460	1,456	1,525	1,578	1,658
Virginia Power - Corp Adjusted	-	-	-	-	-	-	-	-
VEPCO Adjusted EBIT	2,237	2,485	2,580	2,533	2,538	2,746	2,894	3,047
Regulated Gas Ops								
Gas Distribution	242	235	245	240	240	266	288	310
Gas Transmission (Incl. Caiman)	834	780	810	795	808	891	944	943
Total Regulated Gas	1,076	1,015	1,055	1,035	1,048	1,157	1,232	1,252
Merchant Generation	341	315	360	338	340	471	418	507
Dominion Retail	115	55	65	60	62	62	62	62
Corp & Other	(45)	(35)	-	(18)	(10)	(1)	68	418
Total Adjust EBIT	3,724	3,835	4,060	3,948	3,977	4,435	4,674	5,287
Interest expense	870	935	925	930	934	987	1,018	1,069
Income Taxes	950	950	970	960	968	1,120	1,206	1,392
Non-controlling Interests	23	25	15	20	20	20	20	20
Operating Earnings	1,881	1,925	2,150	2,038	2,055	2,307	2,429	2,806
Shares Outstanding	580	584	582	583	585	589	599	613
EPS	3.25	3.30	3.69	3.50	3.52	3.92	4.06	4.58
Previous UBS Estimates					3.52	3.86	3.99	4.51
Formal EPS Guidance Range		3.35	3.65	3.35-3.65				
Guidance of 5%-6% growth off 2011 3.05 base minus 0.04 for elec retail				3.53	3.53	3.73	3.93	
Growth Rate of UBS Estimates						11.4%	3.6%	12.8%
Consensus					3.55	3.76	3.94	4.13

Source: Company Filings and UBS Estimates

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Entergy

While Entergy does not have the PJM exposure like the other names, we have updated our estimates for the latest commodity prices. Our Entergy estimates were last updated in April versus May for many of the companies above therefore the power estimates are higher in 2015+. We flag New England prices remain high due to expectations for continued supply bottlenecks of gas during winter peaking periods.

Figure 28: ETR Earnings Estimate Summary

EPS by Segment	2012A	2013A
Regulated Utility	5.50	4.80
EWC/Nuclear	1.49	1.47
Other	(0.76)	(0.91)
Consolidated	6.23	5.36
Previous	6.23	5.36
Guidance Range		4.60-5.40
Consensus		

Source: Company Filings and UBS Estimates

Please see attachment for disclosures and disclaimers.

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UBS North America Analyst Roster

	Positive /Negative /Neutral?	RTO (MWs)	PS (MWs)	Total	$ Mn	Shares O/S	Impact to EPS vs. "Street" Expectations	% of Total (EBITDA or EPS)
IPPs								
AES (via DPL)	Mild Postive	3,818		3,818	56	725	0.05	3.3%
DYN (includes IPH Imports)	Very Positive	2,700		2,700	39	100		7.5%
CPN	Mild Postive	4,424		4,424	65	423		3.3%
NRG (Classic, GenOn, EME) w/ ~3GW haircut	Very Positive	12,136		12,136	177	337		6.2%
Competitive Integrated								
EXC (w/o ~4GW Nukes Not Clearing)	Very Positive	20,914		20,914	305	859	0.23	8.3%
FE (W/o ~3.5GW of coal in ATSI)	Very Positive	10,568		10,568	154	420	0.24	8.2%
PEG	Positive	3,933	4,667	8,600	143	506	0.18	6.3%
PPL	Mild Postive	9,951		9,951	145	632	0.15	5.9%
More Regulated								
AEP	Positive	8,668		8,668	127	488	0.17	4.4%
DUK	Mild Postive	6479		6,479	95	707	0.09	1.7%
Total Owned by Generators in PJM				88,258	Average			5.5%

	Price- 2016/2017	Expectations- Survey Results	Actual Price for 2017/18	Delta
PS	$ 219	$ 165	$ 215	$ 50
MAAC	$ 119	$ 95	$ 120	$ 25
RTO	$ 59	$ 80	$ 120	$ 40

	2013/14	2014/15	2015/16	2016/17	2017/2018	UBSe 2017/18	Survey 2017/18
Resource Clearing Prices ($/MW-day)							
RTO	$27.73	$125.99	$136.00	$59.37	**$120.00**	$70.00	$70.00
EMAAC	$245.00	$136.50	$167.46	$119.13	**$120.00**	$70.00	$70.00
SWMAAC	$226.15	$136.50	$167.46	$119.13	**$120.00**	$70.00	$70.00
MAAC	$226.15	$136.50	$167.46	$119.13	**$120.00**	$70.00	$70.00
DPL-S	$246.00	$136.50	$167.46	$119.13	**$120.00**	$70.00	$70.00
PS-N	$245.00	$226.00	$167.46	$219.00	**$215.00**	$200.00	$200.00
PSEG	$245.00	$136.50	$167.46	$219.00	**$215.00**	$200.00	$200.00
PEPCO	$247.14	$136.50	$167.46	$119.13	**$120.00**	$70.00	$70.00
ATSI			$357.00	$114.23	**$120.00**	$70.00	$70.00
Reserve Margin	**20.2%**	**19.6%**	**20.2%**	**21.1%**	**19.7%**		

	Actual (MW)	UBSe (MW)	Diff (MW)		Impact ($/MW-day)
UBSe RTO Assumption				**$**	**72.87**
Deltas					
New Gen	5,387	2,573	2,814	$	(20.99)
Gen Reduction/Bidding Strategies	(9,760)	(4,032)	(5,728)	$	42.73
Uprates	474	143	331	$	(2.47)
Reactivations	991	-	991	$	(7.39)
DR Limited	(7,527)	(6,387)	(1,140)	$	8.50
DR Ex Sum	4,693	5,361	(668)	$	4.98
DR Annual	1,401	(89)	1,489	$	(11.11)
Imports	(2,957)	(500)	(2,457)	$	18.33
EE	222	195	27	$	(0.20)
UBSe RTO outcome per model with corrected inputs	**(7,078)**	**(2,736)**	**(4,342)**	**$**	**105.26**
Steeper supply curve				$	14.74
Actual Result				**$**	**120.00**

		EXC max uplift	EXC b/e
Fleet RTO MWs	(a)	25,000	25,000
Baseline RPM Price Assumption ($/MW-day)	(c)	$ 60.00	$ 60.00
Baseline Fleet Revenue Assumption ($M)	(e)	$ 1,500	$ 1,500
MWs Withheld	(b)	(4,457)	(8,914)
Baseline RPM Price Assumption ($/MW-day)	(c)	$ 60.00	$ 60.00
Reduction to Baseline Revenue Assumption ($M)	(f)	$ (267)	$ (535)
Incremental RPM Price Impact ($/MW-day)	(d)	$ 33.25	$ 66.50
Net Fleet Bid (MWs)	(a) - (b)	20,543	16,086
New RPM Price Assumption ($/MW-day)	(c) + (d)	$ 93.25	$ 126.50
New Net Revenue Outcome ($M)	(g)	$ 1,916	$ 2,035
Withholding Uplift $M	(g) - (f) + (e)	**$ 148**	**$ 0**

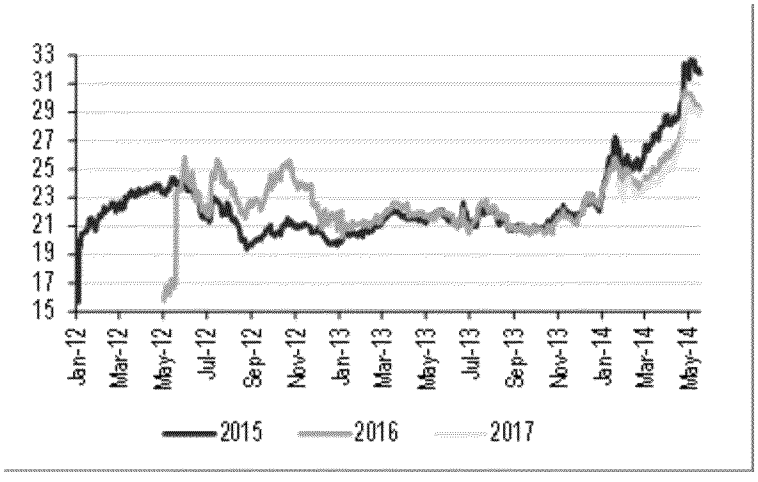
Total New Resources	2013/14	2014/15	2016/2017	2017/2018	Cumulative	Fuel mix
Single-Cyle Turbine	385	213	608	203	4,245	16%
CCGT	764	650	4,380	5,210	13,434	50%
Diesel	6	45	42	130	437	2%
Hydro	-	174	7	112	690	3%
Steam (coal)	240	139	1,564	1,158	5,721	21%
Nuclear uprates	47	107	103	11	1,174	4%
Solar	10	35	34	27	107	0%
Wind	285	220	69	2	1,017	4%
Total	**1,738**	**1,583**	**6,806**	**6,854**	**26,824**	**100%**

This Year	Cleared 2017/18			Offered 2017/18			Uncleared
Region	Uprate	New	Total	Uprate	New	Total	Total
EMAAC	65	1,746	1,812	65	1,746	1,812	-
MAAC-only (excl EMAAC)	94	2,672	2,765	94	2,753	2,847	81
RTO-only (excl MAAC)	181	1,510	1,690	1,022	1,629	2,651	961
Total PJM Footprint	**340**	**5,927**	**6,267**	**1,181**	**6,128**	**7,309**	1,042

Last Year..	Cleared 2016/17			Offered 2016/17			Uncleared
Region	Uprate	New	Total	Uprate	New	Total	Total
EMAAC	383	59	442	579	216	794	352
MAAC-only (excl EMAAC)	279	1,496	1,775	279	1,496	1,775	-
RTO-only (excl MAAC)	519	2,727	3,246	545	3,484	4,029	783
Total PJM Footprint	**1,181**	**4,282**	**5,463**	**1,403**	**5,195**	**6,598**	1,135

MOPR Exemptions	Requested	Granted
2016/17	13,253	13,253
2017/18	14,030	11,394
Total Cleared in '16/'17		(5,463)
Total Cleared in '17/'18		(6,267)
Remaining Approved New Gen but not cleared		12,917

Project	Region	Fuel	MW	Announced	Est Cost	Projected Completion
MAAC						
Wildcat Point / ODEC	MD (PJM)	Natural Gas	1,000	April '13	$1,100Mn	2017
Mattawoman / Panda	MD (PJM)	Natural Gas	829	August '13	$945Mn	July 2017
Keys Energy Center	MD (PJM)	Natural Gas	735		$750Mn	June 2016
Woodbridge	NJ (PJM)	Natural Gas	700	2011	$845Mn	January 2016
Good Spring	PA (PJM)	Natural Gas	330	December '12	$730Mn	2016
Berks Hollow	PA (PJM)	Natural Gas	855		$750Mn	June 2016
Garrison II	DE (PJM)	Natural Gas	309	February '12	$340Mn	TBD
Lebanon Valley	PA (PJM)	Natural Gas	900		$1,045Mn	2017
Lackawanna	PA (PJM)	Natural Gas		August '13	$500Mn	TBD
RTO						
Oregon Clean Energy	OH (PJM)	Natural Gas	799	September '12	$860Mn	May 2016
Stonewall	VA (PJM)	Natural Gas	750	September '12	$600Mn	March 2017
Carroll County	OH (PJM)	Natural Gas	700	July '13	$800Mn	2017
St. Joseph's Energy Center	IN (PJM)	Natural Gas	673	2011	$740Mn	Sept 2016
Nelson	IL (PJM)	Natural Gas	584	December '13	$630Mn	Jan 2015
Deerfield	MI (PJM)	Natural Gas	400			
Westmoreland	PA (PJM)	Natural Gas	900		$1,023Mn	2016
Rolling Hills Uprate	OH (PJM)	Natural Gas	564		N/A	2016
Total Potential MAAC			**6,768**			
Total Potential RTO-Only (Excl. MAAC)			**5,370**			
Total Cleared MAAC 2017/18			**4,577**			
Total Cleared RTO 2017/18			**1,350**			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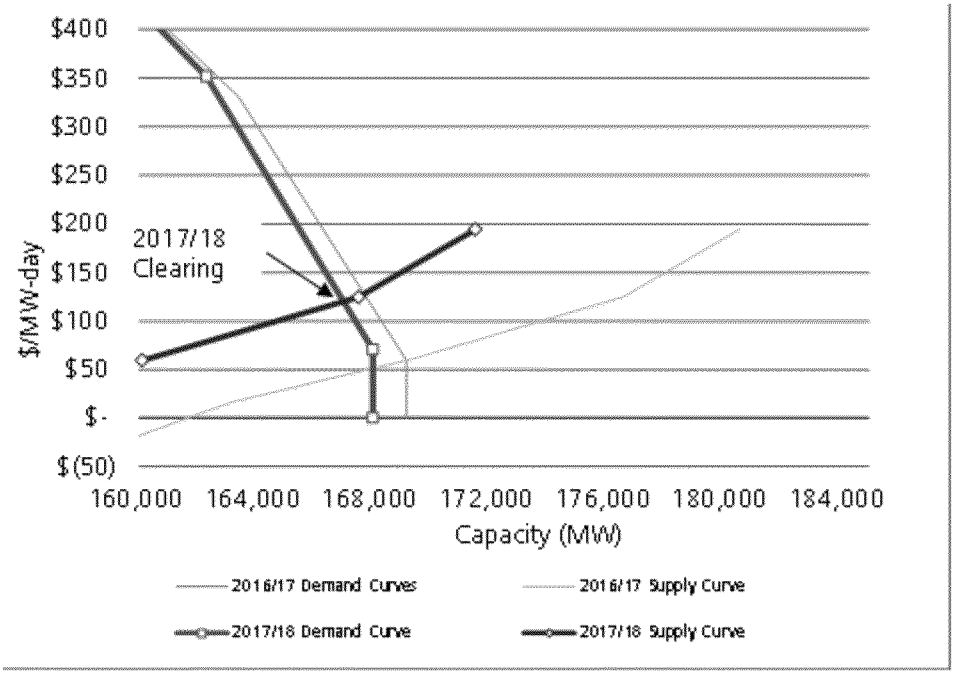
		Offered MW			2017/18 Cleared MW			Delta vs. Last Auction		
Region	LDA	Demand Response	Energy Efficiency	Total	Demand Response	Energy Efficiency	Total	Offered Δ vs. '16/17	Cleared Δ vs. '16/17	Uncleared
EMAAC	AECO	134.8	0.8	135.6	134.7	0.8	135.5	(56.2)	(38.5)	0.1
	DPL	372.9	29.0	401.9	369.7	29.0	398.7	(91.9)	(62.0)	3.2
	JCPL	169.8	7.1	176.9	159.4	7.1	166.5	(85.3)	(61.1)	10.4
	PECO	494.1	24.8	518.9	480.0	24.8	504.8	(88.6)	(37.8)	14.1
	PSEG	392.7	18.7	411.4	388.4	17.6	406.0	(240.0)	(236.6)	5.4
	RECO	3.4	-	3.4	3.4	-	3.4	(9.0)	(6.7)	-
	Sub-Total	1,567.7	80.4	1,648.1	1,535.6	79.3	1,614.9	(571.0)	(442.7)	33.2
PEPCO	PEPCO	619.8	104.2	724.0	608.4	104.2	712.6	(43.5)	(34.8)	11.4
MAAC	BGE	803.2	123.7	926.9	791.2	123.7	914.9	(168.0)	(146.6)	12.0
	METED	306.6	12.8	319.4	298.9	12.8	311.7	(99.3)	(12.3)	7.7
	PENELEC	367.7	12.9	380.6	356.8	12.9	369.7	(82.0)	(71.7)	10.9
	PPL	812.7	35.6	848.3	686.2	35.6	721.8	(223.3)	(306.6)	126.5
	Sub-Total	2,290.2	185.0	2,475.2	2,133.1	185.0	2,318.1	(572.6)	(537.2)	157.1
SWMAAC		1,423.0	227.9	1,650.9	1399.6	227.9	1,627.5	(211.5)	(181.4)	23.4
Grand Total	MAAC	4,477.7	369.6	4,847.3	4,277.1	368.5	4,645.6	(1,187.1)	(1,014.7)	201.7
RTO	AEP	1,445.5	136.3	1,581.8	1,426.1	136.3	1,562.4	(257.7)	66.5	19.4
	APS	940.8	10.3	951.1	928.9	10.3	939.2	(13.2)	240.2	11.9
	ATSI	1,064.4	142.0	1,206.4	1,020.2	142.0	1,162.2	(913.2)	(846.3)	44.2
	COMED	1,499.6	583.3	2,082.9	1,478.1	583.3	2,061.4	(66.1)	398.5	21.5
	DAY	211.9	49.2	261.1	209.4	49.2	258.6	(53.3)	(1.1)	2.5
	DEOK	194.0	17.5	211.5	192.4	17.5	209.9	(189.1)	(99.7)	1.6
	DOM	1,157.8	20.7	1,178.5	1,141.1	20.7	1,161.8	(309.2)	12.8	16.7
	DUQ	161.9	10.6	172.5	161.4	10.6	172.0	(45.2)	24.6	0.5
	EKPC	140.1	0.5	140.6	140.1	0.5	140.6	3.8	140.6	-
	Sub-Total	6,816.0	970.4	7,786.4	6,697.7	970.4	7,668.1	(1,843.2)	(197.0)	118.3
Grand Total		11,293.7	1,340.0	12,633.7	10,974.8	1,338.9	12,173.1	(2,893.5)	(1,219.2)	460.6

DR Prices	2017/18
RTO	
Annual	$120.00
Summer Extended	$120.00
Limited	$106.02
PSEG	
Annual	$215.00
Summer Extended	$215.00
Limited	$201.02
PPL	
Annual	$120.00
Summer Extended	$53.98
Limited	$40.00

PJM Transmission Imports Math				
Exempted Transmission Imports	4,777			
Exempted Transmission Imports - Cleared per PJM	-4,000			
Remaining Imports by Region		Disclosed Prelim Regional Limits	Cleared Capacity by Zone	Prices by Zone ($/MW-day)
North (NYISO and ISO-NE)	27	1,598	223	120
West 1 (MI and Northern MISO)	-	2,301	1,268	-
West 2 (Southern IL / MISO)	397	767	2,624	120
South 1 (TVA, etc)	188	1,278	235	120
South 2 (Carolinas)	-	2,493	176	-
Remaining under Zonal Caps	612.0	8,437	4,526	
Total Exempted + Under Remaining Cap	5,389			
Actually Cleared in 2017/18	4,526			
Last Year Cleared	7,500			
YoY Decline	2,974			

Major Drop YoY


$400
$350
$300
$250
$200
$150
$100
$50
$-
$(50)
$/MW-day
2017/18
Clearing
160,000
164,000
168,000
172,000
176,000
180,000
184,000
Capacity (MW)
2016/17 Demand Curves
2016/17 Supply Curve
2017/18 Demand Curve
2017/18 Supply Curve

RTO Supply Assumptions (MW)	
Retirements	-9,760
Dynegy/PSEG Uprates	+474
Supply Curve Adjustment	-1,975
New Generation/CC Conversions	+6,378
DR MW (Annual)	+1,401
DR Strategy Offset+Price Uplift	+0
DR MW (Extended Summer)	+4,693
DR MW (Limited)	-7,527
Net DR Shift	-1,433
Imports	-2,957
Energy efficiency	+222
Total	-9,053
Outcome 2017/18 UBSe	$120.00
Outcome 2016/17	$59.37

EPS Contribution	2012A	2013A	2014E	2015E	2016E	2017E
Distribution Utilities	2.51	2.28	2.62	2.67	2.90	2.83
Genco	0.62	0.68	0.51	0.45	0.28	0.30
Transmission Projects	0.09	0.16	0.30	0.40	0.52	0.68
Corporate and Other	(0.13)	0.10	0.04	0.04	0.04	0.04
Total EPS	**3.09**	**3.23**	**3.47**	**3.56**	**3.74**	**3.85**
Growth Rate		*4.4%*	*7.4%*	*2.8%*	*5.0%*	*3.0%*
EPS CAGRs		*2013-2016*	*5.0%*	*2014-2016*	*3.9%*	
Guidance		$3.05 - 3.25	$3.35 - 3.55	$3.30 - 3.60	$3.45 - 3.85	
Consensus		3.19	3.49	3.54		
Prior Estimate		3.23	3.47	3.56	3.74	3.85
Regulated-Only EPS		2.55	2.96	*3.11*	3.46	3.55

Calpine Adj. EBITDA UBSe	2012	2013	2014	2015	2016	2017	2018
West	638	684	778	688	700	680	699
Texas	323	356	407	578	578	632	666
Southeast	102	80	116	17	14	12	12
North	590	615	683	651	552	526	573
Other	33	29	30	29	30	31	31
Corporate Allocation	63	66	54	67	68	70	72
Total EBITDA	**1,749**	**1,830**	**2,068**	**2,031**	**1,942**	**1,951**	**2,053**
Guidance	*1,800-1,825*		*1,900-2,000*				
Street Consensus (5/24/14)			*1,986*	*2,038*	*2,050*	*2,196*	
Previous UBS			*2,068*	*2,052*	*1,942*	*1,967*	

Pro-Forma Dynegy-Ameren Estimates	2013A	2014E	2015E	2016E	2017E	2018E
Midwest (Dynegy Inc.)	50	215	193	206	213	207
West	95	49	46	52	7	8
Northeast	137	186	146	131	140	168
Illinois Power Holdings (Standalone)	12	74	81	113	149	163
PRIDE Reloaded (Mostly Gross Margin/Not O&M)			48	85	85	85
Consolidated G&A	(76)	(100)	(100)	(100)	(100)	(100)
Adj. EBITDA (Standalone DYN + IPH)	**219**	**425**	**413**	**486**	**494**	**530**
UBS Prior		**425**	**472**	**548**	**529**	**561**
Consensus (5/7/14)		390	503	608		
Guidance	200 - 225	300-350				
CoalCo	(10)-15					
GasCO	280 - 295					
Adj. EBITDA w/o G&A Allocation	**283**	**525**	**465**	**501**	**509**	**545**
CoalCo	(14)	133	51	71	76	73
GasCo	296	317	334	318	283	309
Illinois Power Holdings		74	81	113	149	163

Exelon Consolidated EPS	2012A	2013A	2014	2015	2016	2017	2018
PECO	0.47	0.46	0.46	0.47	0.48	0.50	0.53
ComEd	0.47	0.49	0.55	0.63	0.66	0.70	0.75
BGE	0.06	0.23	0.22	0.22	0.22	0.24	0.25
Exelon Generation	1.89	1.40	1.21	1.35	1.26	1.60	1.71
Other	(0.04)	(0.07)	(0.06)	(0.10)	(0.14)	(0.15)	(0.16)
Total EPS	**2.85**	**2.50**	**2.38**	**2.56**	**2.49**	**2.89**	**3.08**
Guidance			*2.35-2.55*				
Consensus			2.37	2.34	2.23	2.33	-
Prior UBS estimates	*2.50*	*2.38*	*2.62*	*2.54*	*2.60*	*2.95*	
Regulated EPS	*1.17*	*1.24*	*1.31*	*1.37*	*1.44*	*1.53*	
Regulated Guidance		*1.10-1.40*	*1.15-1.45*	*1.25-1.55*			

UBS Estimates	2013E	*2014 Guidance*	2014E	2015E	2016E	2017E	2018E
Energy Delivery	2.03	*1.98-2.04*	2.02	2.05	2.09	2.12	2.18
FirstEnergy Solutions	0.73	*0.12-0.22*	0.13	0.53	0.29	0.19	0.31
Transmission (ATSI, Trail, and OpCos)	0.47	*0.52-0.56*	0.52	0.54	0.71	0.80	0.86
Other	(0.20)	*(0.22)*	(0.22)	(0.15)	(0.17)	(0.19)	(0.22)
Total UBSe EPS	**3.04**	***2.40-2.60***	**2.45**	**2.98**	**2.92**	**2.93**	**3.13**
Previous UBSe (except Guidance)		*2.45-2.65*	2.47	3.15	3.05	2.90	
Consensus			2.48	3.00	2.90	2.74	3.30

Gross Margin	2013	2014	2015	2016	2017	2018
Open Coal Energy Margins	322	393	635	638	707	715
Open Nuclear Energy Margins	730	761	877	905	933	943
Hedge Value (From Analyst Day+MtM Sinc	805	411	(255)	(144)		
Capacity Revenues	237	406	929	668	387	438
Marketing Margin (UBSe Retail Margins)	259	1	100	100	100	100
Gross Margin (Gen/Retail-Only)	**2,352**	**1,972**	**2,285**	**2,167**	**2,126**	**2,197**

EBITDA	2013	2014	2015	2016	2017	2018
Open Fossil EBITDA	(74)	114	810	574	352	538
Open Nuclear EBITDA	41.12	169	329	245	276	320
Retail & Hedges EBITDA	1,262	332	(237)	(42)	102	(65)
FES Total	**1,229**	**616**	**902**	**777**	**730**	**793**
Adjusted EBITDA Guidance		615-655	$950-$1,050			

	2012A	2013A	2014E	2015E	2016E	2017E
PSEG Power	1.27	1.40	1.28	0.97	0.85	0.88
PSE&G	1.04	1.21	1.41	1.57	1.74	1.90
PSEG Enterprise & Other	0.13	(0.03)	0.07	0.09	0.11	0.11
Total	***2.44***	***2.58***	***2.77***	***2.62***	***2.71***	***2.90***
Prior	2.44	2.58	2.77	2.64	2.74	2.89
Consensus			2.76	2.67	2.73	
% Regulated	43%	47%	51%	60%	64%	66%
Regulated EPS CAGR ('13-16')					13%	
Guidance		$2.40-$2.55	$2.55-$2.75			

PPL Corp. UBSe EPS	2013E	2014E	2015E	2016E	2017E	2018E	13-'17 CAGR
Energy Supply	0.39	0.11	0.07	0.11	0.10	0.14	
UK Utilities	1.37	1.37	1.44	1.50	1.51	1.57	2.5%
PA Electric Utility	0.32	0.38	0.41	0.45	0.49	0.53	10.9%
Kentucky Utilities	0.48	0.43	0.53	0.50	0.60	0.57	5.8%
Corporate	(0.11)	(0.06)	(0.04)	(0.12)	(0.16)	(0.21)	
Total	2.45	2.23	2.40	2.43	2.54	2.61	
UK Utilities Guidance (July 13)	1.25-1.32	1.19-1.31	1.17-1.33				
Prior UBSe	2.45	2.22	2.43	2.51	2.51		
Street Consensus	2.45	2.24	2.24	2.24	2.24		

PPL Supply Projections	2011A	2012A	2013A	2014E	2015E	2016E	2017E	2018E
Generation EBITDA	1,311	1,257	856	576	561	659	621	646
Nuclear D&A	119	112	132	148	152	157	161	166
Interest Expense -- PPL Supply Only	(160)	(160)	(153)	(118)	(118)	(118)	(118)	(118)
Taxes (Est.)	(515)	(255)	(138)	(39)	(31)	(64)	(55)	(67)
FCF pre-capex (proxy for FFO)	**755**	**953**	**697**	**567**	**564**	**634**	**609**	**627**
Growth/Other Capex								
Base Capex	507	197	197	101	100	250	250	250
Nuclear Fuel	152	159	161	158	160	160	160	160
Environmental	181	314	89	354	295	0	0	0
Other	0	230	253	(83)	(45)	20	20	20
Total Growth/Other Capex	**840**	**900**	**700**	**530**	**510**	**430**	**430**	**430**
Free Cash Flow	(85)	53	(3)	37	54	204	179	197
Debt Profile (incl. ST Debt Balance)	3,424	3,628	2,525	3,192	3,192	3,192	3,192	3,192
Cash	(379)	(413)	(551)	(588)	(642)	(847)	(1,026)	(1,223)
Net Debt	3,045	3,215	1,974	2,604	2,550	2,345	2,166	1,969
Equity Unit Conversions				978				
Sale Proceeds (Back to the parent)			895					
Colstrip Debt			273					
Maturities (From 1Q14 Slides)			438	303	304	354	4	403
Net Debt/EBITDA	4.0x	3.4x	2.8x	4.6x	4.5x	3.7x	3.6x	3.1x
FFO / Debt	22%	26%	28%	18%	18%	20%	19%	20%
Moody's Target for Supply			20%					

Positive Free Cash Flow Forecast

GenOn Mini Free Cash Flow	2013A	2014E	2015E	2016E	2017E	2018E
Beginning Cash Balance	**825**	**760**	**674**	**771**	**801**	**855**
EBITDA	**482**	**548**	**568**	**534**	**559**	**626**
Plus: Non-Cash Lease Amortization	80	80	80	80	80	80
Less: Minimum Lease Payment	(202)	(194)	(166)	(211)	(207)	(196)
Interest Expense	(205)	(262)	(262)	(262)	(262)	(262)
Maintenance Capex	138	115	115	110	115	115
Environmental Capex	118	142	7	0	0	0
Total Capex	256	257	122	110	115	115
Free Cash Flow	**(101)**	**(86)**	**97**	**30**	**54**	**112**
Ending Cash Balance	**724**	**674**	**771**	**801**	**855**	**967**

2014 Guidance vs 2013 Actual Results and UBS 2014E Estimates by Segment (EBIT) using ABS								
		FY14 Guidance			UBS			
VEPCO	2013A	Low	High	2014 Mid	2014E	2015E	2016E	2017E
Electric Distribution	542	590	615	603	604	664	703	724
Electric Transmission	402	460	480	470	478	558	613	664
Utility Generation	1,293	1,435	1,485	1,460	1,456	1,525	1,578	1,658
Virginia Power - Corp Adjusted	-	-	-	-	-	-	-	-
VEPCO Adjusted EBIT	2,237	2,485	2,580	2,533	2,538	2,746	2,894	3,047
Regulated Gas Ops								
Gas Distribution	242	235	245	240	240	266	288	310
Gas Transmission (Incl. Caiman)	834	780	810	795	808	891	944	943
Total Regulated Gas	1,076	1,015	1,055	1,035	1,048	1,157	1,232	1,252
Merchant Generation	341	315	360	338	340	471	418	507
Dominion Retail	115	55	65	60	62	62	62	62
Corp & Other	(45)	(35)	-	(18)	(10)	(1)	68	418
Total Adjust EBIT	3,724	3,835	4,060	3,948	3,977	4,435	4,674	5,287
Interest expense	870	935	925	930	934	987	1,018	1,069
Income Taxes	950	950	970	960	968	1,120	1,206	1,392
Non-controlling Interests	23	25	15	20	20	20	20	20
Operating Earnings	1,881	1,925	2,150	2,038	2,055	2,307	2,429	2,806
Shares Outstanding	580	584	582	583	585	589	599	613
EPS	3.25	3.30	3.69	3.50	3.52	3.92	4.06	4.58
Previous UBS Estimates					3.52	3.86	3.99	4.51
Formal EPS Guidance Range		3.35	3.65	3.35-3.65				
Guidance of 5%-8% growth off 2011 3.05 base minus 0.04 for elec retail				3.53	3.63	3.73	3.93	
Growth Rate of UBS Estimates						11.4%	3.6%	12.8%
Consensus					3.65	3.76	3.94	4.13

EPS by Segment	2012A	2013A	2014E	2015E	2016E	2017E	2018E
Regulated Utility	5.50	4.80	5.03	5.23	5.39	5.57	5.76
EWC/Nuclear	1.49	1.47	2.13	0.73	0.69	0.26	0.21
Other	(0.76)	(0.91)	(1.10)	(0.96)	(0.92)	(0.96)	(1.00)
Consolidated	6.23	5.36	6.05	5.00	5.16	4.87	4.98
Previous	6.23	5.36	6.05	4.87	4.94	4.52	
Guidance Range		4.60-5.40	5.55-6.75				
Consensus			6.04	5.12	5.11	5.23	

Cc: 'AMY GRACE, BLOOMBERG/ BNEF'[agrace3@bloomberg.net]; 'alexv@filsingerenergy.com'[alexv@filsingerenergy.com]; 'scottd@filsingerenergy.com'[scottd@filsingerenergy.com]; 'Michael Beck'[mike.beck@mjbeckconsulting.com]; 'Michael King'[mpking@apexpowergroup.com]
From: Zimbardo, Paul
Sent: Thur 5/15/2014 2:22:12 PM
Subject: UBS Access: PJM's View - Interpreting PJM Capacity Results

1) Conference Call: PJM's View: Interpreting PJM Capacity Results

When? Tuesday, March 27th @ 12:00 pm

Who? Andy Ott, Executive Vice President of Markets at PJM

Topics?

Andy Ott will discuss the latest results, its implications on the markets and his outlook moving forward. He will also discuss the PJM auction design, demand response, transmission planning and new generation changes.

Dial-In?

Participant Dial In:

Toll Free: 888 717 8896

Toll: +1 631 291 4621

Passcode: 21714655

Replay Information:

Toll Free: 800 633 8284

Toll: +1 402 977 9140

Passcode: 21714655

To: Garbow, Avi[Garbow.Avi@epa.gov]; Kopocis, Ken[Kopocis.Ken@epa.gov]
From: Richardson, Elena
Sent: Tue 12/10/2013 6:59:33 PM
Subject: Pre-Brief - 316B Meeting

To: Feldt, Lisa[Feldt.Lisa@epa.gov]; Kopocis, Ken[Kopocis.Ken@epa.gov]
From: Garbow, Avi
Sent: Mon 12/9/2013 10:50:19 PM
Subject: RE: 316B

Worth us catching up beforehand. There were a few follow up calls as well - mainly involving lawyers from DOI/NOAA and us.

Avi Garbow
General Counsel
U.S. Environmental Protection Agency
(202) 564-8040

-----Original Message-----
From: Feldt, Lisa
Sent: Monday, December 09, 2013 5:48 PM
To: Garbow, Avi; Kopocis, Ken
Subject: 316B

Privileged and Confidential

Wasn't able to make lawyers call today. How did it go? Andrei called me to discuss strategy for tomorrows discussion. It would be good to get the three of us together before we go over. I'll see if I can find us sometime.
Lisa
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To: Garbow, Avi[Garbow.Avi@epa.gov]; Kopocis, Ken[Kopocis.Ken@epa.gov]
From: Feldt, Lisa
Sent: Mon 12/9/2013 10:47:50 PM
Subject: 316B

Privileged and Confidential

Wasn't able to make lawyers call today. How did it go? Andrei called me to discuss strategy for tomorrows discussion. It would be good to get the three of us together before we go over. I'll see if I can find us sometime.
Lisaÿ

To: Kopocis, Ken[Kopocis.Ken@epa.gov]
Cc: Southerland, Elizabeth[Southerland.Elizabeth@epa.gov]; Levine, MaryEllen[levine.maryellen@epa.gov]; Wade, Alexis[Wade.Alexis@epa.gov]; Hewitt, Julie[Hewitt.Julie@epa.gov]; Born, Tom[Born.Tom@epa.gov]
From: Wood, Robert
Sent: Mon 12/9/2013 8:06:38 PM
Subject: Background on Decision to Request Formal Consutlation
Brief for Bob P for 316b SP and ESA 04 23 2013_v1.pptx

Ken,

You asked if there were some talking points for Bob P on the decision to request formal consultation. I looked back and found two briefing documents we used in meetings with Bob, one on April 3, 2013 and one on April 23, 2013. The 4/23 document is attached; see pp 7-9. There is reference to "notification" from the Services and I continue to believe that was verbal. Still we are going back to see what we can find in writing (in addition to what I sent you Friday.

Robert Wood

Director,

Engineering and Analysis Division

Office of Water

202-566-1822

To: Kopocis, Ken[Kopocis.Ken@epa.gov]
Cc: Garbow, Avi[Garbow.Avi@epa.gov]
From: Feldt, Lisa
Sent: Mon 12/9/2013 6:33:41 PM
Subject: 316B

Ken, how are you coming on Ex. 5 - Deliberative I know you sent a draft last week but mentioned you were going to be reviiising. It would be useful to have for our meeting tomorrow. Lisaÿ

To: Kopocis, Ken[Kopocis.Ken@epa.gov]
Cc: Distefano, Nichole[DiStefano.Nichole@epa.gov]
From: Vaught, Laura
Sent: Mon 12/9/2013 5:40:43 PM
Subject: doc for review
Ken K responses December 2013.doc

Can you take a look at this before 3:30 or so? I'm supposed to talk to Bryan and 4:00. And yes – I realize that we may not need this at all, but this is in the getting it ready in case we do vein…

To: Kopocis, Ken[Kopocis.Ken@epa.gov]
Cc: Southerland, Elizabeth[Southerland.Elizabeth@epa.gov]; Hewitt, Julie[Hewitt.Julie@epa.gov]
From: Wood, Robert
Sent: Mon 12/9/2013 4:58:18 PM
Subject: RE: 316(b) and ESA(1).doc
316(b) and ESA(1)rw.docx

Edits attached in track changes to help with truthiness and a bit more detail. Happy to discuss.

Robert Wood

Engineering and Analysis Division

Office of Water

202-566-1822

From: Kopocis, Ken
Sent: Monday, December 09, 2013 8:51 AM
To: Wood, Robert
Cc: Southerland, Elizabeth
Subject: 316(b) and ESA(1).doc

I developed the attached narrative based on your documents.

Please check it for "truthiness" and whether I missed something.

Thanks,

Ken

benefits estimate, and then base their benefits calculations on the upper end of the error range.

- *Non-use value estimates no lower than those found by EPA* – Presently, EPA is conducting a national willingness to pay study to develop accurate and transferable estimates of the non-use benefits of wildlife. If applicants or regulators can document a substantial basis to deviate upwards from EPA's estimates, this should be permitted. But contingent valuation of environmental goods is difficult and must be done with care and transparency because an applicant can significantly alter the results of a site-specific cost-benefit analysis by manipulating estimates of non-use values. As a safeguard against inaccurate estimation studies, EPA should not allow applicants to present non-use values for fish and aquatic ecosystems that are lower than those found in EPA's forthcoming study.

G. EPA Cannot Issue a Final Rule Without First Consulting NMFS and FWS and Fully Complying with its Duties under Other Applicable Federal Environmental Laws.

Although EPA is promulgating this proposed rule under the Clean Water Act, the agency has a separate duty to comply with the Endangered Species Act. Under that Act, EPA has a mandatory duty "to use . . . all methods which are necessary to bring any endangered . . . or threatened species to the point at which the protections of the Act are no longer necessary."[682] Also, EPA must consult with the Secretaries of the Departments of Interior and Commerce to insure that any action it authorizes, funds, or carries out "is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of [critical] habitat of such species."[683]

To date, EPA has not consulted the National Marine Fisheries Service (NMFS) and the Fish and Wildlife Service (FWS), the designees of the Secretaries of the Interior and Commerce, to obtain their opinions on the biological and ecological impacts of this rule and the advisability of reasonable and prudent alternatives to EPA's Proposed Rule. Reasonable and prudent alternatives to EPA's proposed action exist, including the other regulatory options under consideration.

In promulgating this rule, EPA will be taking an action within the meaning of the Endangered Species Act.[684] Specifically, EPA is requiring states to make case-by-case entrainment control decisions and is declining to set a uniform, national, technology-based standard based on the performance of closed-cycle cooling systems. Thus, EPA is authorizing existing cooling water intake structures to continue to take endangered species, and to adversely modify habitat that is critical to multiple endangered species, on the vain hope that states may be

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[682] *Nat'l Wildlife Fed'n v. Hodel*, No. S-85-0837, 1985 U.S. Dist. Lexis 16490 at *11 (Aug. 26, 1985) (E.D. Cal.) (citing 16 U.S.C §§ 1536(a)(1), 1532(3)).

[683] 16 U.S.C. § 1536(a)(2).

[684] *See* 40 C.F.R. § 402.02 ("Action means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas. Examples include, but are not limited to . . . the promulgation of regulations...").

able to take effective action to regulate these intakes. Where an EPA action directly continues a situation in which endangered species are being taken, EPA must first consult the Secretary of Interior, Commerce, or Agriculture as appropriate.[685]

EPA has evidence that cooling water intake structures take endangered and threatened species of fish. And the Proposed Rule authorizes continued operation of existing cooling water intake structures in a manner that EPA claims will at best "minimize" over an extremely extended schedule – and, significantly, will not end – the killing of fish and other aquatic organisms, as well as the wholesale degradation of aquatic ecosystems by CWISs. Under these circumstances, EPA has a mandatory duty to consult with the NMFS and FWS prior to promulgating a final rule.

In addition, EPA's has duties to protect and conserve wildlife, and to cooperate with other federal agencies in the protection and conservation of wildlife, under a number of federal laws including but not limited to: the National Environmental Protection Act,[686] the Endangered Species Act,[687] the Fish and Wildlife Coordination Act,[688] the Bald and Golden Eagle Protection Act,[689] the Migratory Bird Treaty Act,[690] the Migratory Bird Conservation Act,[691] the Marine Mammal Protection Act,[692] the Wilderness Act,[693] the Coastal Zone Management Act,[694] the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006,[695] and Federal Land Policy and Management Act,[696] and the National Forest Management Act.[697] EPA cannot promulgate a final regulation without first insuring that it has met its particular duties under these acts, and its general duty to protect and conserve wildlife – particularly endangered and threatened species.

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[685] *See Defenders of Wildlife v. EPA*, 882 F.2d 1294, 1300 (8th Cir. 1989).

[686] *See* 42 U.S.C. §§ 4321-70d.

[687] *See* 16 U.S.C. §§ 1531-44.

[688] *See* 16 U.S.C. §§ 661-67e.

[689] *See* 16 U.S.C. §§ 668a-668d.

[690] *See* 16 U.S.C. §§ 703-712.

[691] *See* 16 U.S.C. §§ 715-715s.

[692] *See* 16 U.S.C. §§ 1361-1421h.

[693] *See* 16 U.S.C. §§ 1132-1136.

[694] *See* 15 U.S.C. §§ 1451-65.

[695] *See* 16 U.S.C. §§ 1801-91d.

[696] *See* 43 U.S.C. §§ 1701-85.

[697] *See* 16 U.S.C. §§ 1600-87.

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FILE NO: 29142.060024

October 25, 2013

Via Overnight Mail

The Honorable Regina McCarthy
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Ms. Donna Wieting
Director, Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway, F/PR3
Silver Spring, MD 20910

Mr. Gary D. Frazer
Assistant Director, Endangered Species
U.S. Fish and Wildlife Service
4401 North Fairfax Drive
Arlington, VA 22203

Re: Endangered Species Act Consultation on EPA Rulemaking to Establish Additional Restrictions on Cooling Water Intake Structures at Existing Facilities

Dear Administrator McCarthy, Ms. Wieting, and Mr. Frazer:

We submit this letter on behalf of the Utility Water Act Group ("UWAG") to express our concerns with ongoing Endangered Species Act ("ESA") consultation over the U.S. Environmental Protection Agency's ("EPA") proposed restrictions for cooling water intake structures ("CWISs") at existing facilities.

UWAG members operate power plants and other facilities that generate, transmit, and distribute electricity to residential, commercial, industrial, and institutional customers. Many of UWAG's members operate facilities with cooling water intake structures that will be subject to the "Final Regulations to Establish Requirements for Cooling Water Intake Structures at Existing Facilities and Amend Requirements at Phase I Facilities" ("section 316(b) rule") scheduled to be signed by EPA by November 4, 2013.

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When final, the section 316(b) rule will place new restrictions on cooling water intake structures at existing power plants and manufacturing facilities. The creation and operation of those intake structures already have been authorized under other state and federal laws. The proposed rule,[1] which does not authorize the creation of any new intake structure but instead only places restrictions on cooling water intake structures at existing facilities, is designed to minimize adverse environmental impacts by protecting aquatic organisms (including but not limited to ESA-listed species) from entrainment and impingement. Thus, the proposed rule will have only beneficial effects on listed species. Indeed, EPA determined that the proposed section 316(b) rule will "reduce impacts to listed species from cooling water intake structures" and "will not cause adverse effects and will benefit affected species whether threatened, endangered or otherwise."[2] The proposed rule also contains a provision specifically requiring permit writers to impose more stringent requirements, as necessary, to ensure compliance with requirements of State law, Tribal law, or other Federal law, including but not limited to the ESA, Marine Mammal Protection Act, the Coastal Zone Management Act, and the Magnuson-Steven Fishery Conservation and Management Act.

EPA correctly observed in its biological evaluation that formal ESA section 7 consultation is not required if EPA determines, and the National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (FWS) (jointly, the Services) concur, that the proposed rule is not likely to adversely affect listed species. Yet there is no indication that the Services concurred in EPA's determination that the rule is not likely to adversely affect listed species. Instead, EPA and the Services have now engaged in an unnecessary formal consultation process that is delaying and increasing the costs of the rulemaking, and occurring with no public scrutiny or involvement.

We urge the Services and EPA to account for the concerns set forth in this letter.

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[1] 76 Fed. Reg. 22,174 (Apr. 20, 2011).

[2] Letter from Robert K. Wood, Dir., EPA, to Donna Wieting, Dir., NMFS, and Gary Frazer, Assistant Dir., FWS (June 18, 2013), *available at* http://insideepa.com/iwpfile.html?file=jul2013%2Fepa2013_1247a.pdf (Initiation of Formal Consultation on the EPA's Final Regulations to Establish Requirements for Cooling Water Intake Structures at Existing Facilities and Amend Requirements at Phase I Facilities) (hereinafter, "EPA Consultation Letter").

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First, during consultation, the agencies must base their determinations of the effects of the proposed section 316(b) rule on effects to species that will occur as a result of the proposed section 316(b) rule in relation to *existing baseline conditions* today. The agencies' determinations with respect to jeopardy, adverse modification or other effects may not be based on additional restrictions that the agencies may believe that EPA *could* impose in the new rule. Potential or hypothetical future regulations do not form the baseline for determining effects.

Second, because the proposed section 316(b) rule will have only beneficial effects on listed species, the Services should conclude consultation with either a "not likely to adversely affect" concurrence, or a biological opinion finding that no jeopardy or adverse modification will occur as a result of the rule.

Third, any analysis of baseline environmental conditions or the effects of the proposed section 316(b) rule must be based on "scientific data." The ESA requires use of the "best scientific and commercial data available," 16 U.S.C. § 1536(a)(2), which precludes reliance on speculation or surmise as a substitute for scientifically derived, verifiable data. As EPA acknowledges in its biological evaluation, there is a high degree of uncertainty regarding the possible overlap of facilities that may be subject to the proposed action with the habitat of listed species.

Finally, ESA consultation procedures provide no basis for the imposition of additional restrictions where only beneficial effects will occur. Thus, the consultation process should not result in the imposition of new restrictions in the final section 316(b) rule. In fact, any new restriction that arises not from the rulemaking process, but from closed-door consultation procedures, would violate public notice and comment rulemaking requirements of the Administrative Procedure Act ("APA").

For the reasons more fully set forth below, formal consultation on the section 316(b) rule should be promptly concluded with a not likely to adversely affect concurrence. 50 C.F.R. § 402.14(l)(3). If the agencies nonetheless continue with formal consultation, they must evaluate the effects of the proposed section 316(b) rule based on changes to current baseline conditions today. Because the proposed rule will have only beneficial effects, the Services should conclude consultation with a "not likely to adversely affect" concurrence or a

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biological opinion finding that no jeopardy or adverse modification will occur as a result of the rule.

I. Formal Consultation on the Section 316(b) Rule is Not Warranted.

Formal section 7 consultation was not required and should not have been initiated for the section 316(b) rule. The administrative record demonstrates that the rule will have "purely beneficial" effects on threatened or endangered species. In these circumstances, the Services' regulations, Endangered Species Consultation Handbook, and case law all support a "not likely to adversely affect" determination,[3] which negates the need for formal consultation.

A. Section 7 Requirements for Consultation.

Under ESA section 7(a)(2), federal agencies consult with FWS and/or NMFS, when required, to insure that agency actions are not likely to jeopardize the continued existence of a threatened or endangered species, or cause destruction or adverse modification of the species' designated critical habitat. 16 U.S.C. § 1536(a)(2). If an agency determines that its action has "no effect," consultation is not required. 50 C.F.R. §402.14(a).[4] Otherwise, if an agency determines that its action "may affect" listed species or critical habitat, it may either initiate informal consultation with the Services to determine whether formal consultation is required, or it may proceed directly to formal consultation with the Services.

If informal consultation is undertaken, and the action agency determines with the Service's concurrence that the action is "not likely to adversely affect" listed species or designated habitat, consultation concludes without formal consultation. The Handbook explains that a "not likely to adversely affect" determination is appropriate "when effects on listed species are expected to be discountable, insignificant, or completely beneficial." Handbook at 3-12. Formal consultation is required only if a "may affect" determination is made and the Service does not concur in a "not likely to adversely affect" determination. 50 C.F.R. § 402.14(b)(1).

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[3] FWS, Endangered Species Consultation Handbook: Procedures for Conducting Consultation and Conference Activities Under Section 7 of the Endangered Species Act at E-11, E-12 (Mar. 1998) (hereinafter "Handbook").

[4] According to the Services, a "no effect" determination is not appropriate when an effect may occur, including discountable, insignificant, or completely beneficial effects. *See* Handbook at 3-12.

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B. The Section 316(b) Rule Will Have Purely Beneficial Effects.

In the proposed section 316(b) rule, EPA has included technology-based requirements to restrict impingement and entrainment of aquatic organisms at all existing power generating, manufacturing, and industrial facilities with cooling water intake structures withdrawing more than two million gallons per day. 76 Fed. Reg. 22,174 (Apr. 20, 2011). For impingement (organisms pinned against intake screens), EPA proposed to set performance standards based on use of advanced traveling screens with fish returns, which EPA finds are available for all facilities and achieve performance comparable to wet recirculating cooling at a cost ten times lower than recirculating cooling. 76 Fed. Reg. 22,204-05. For entrainment (organisms drawn through intake screens), EPA proposed that requirements be established by National Pollutant Discharge Elimination System ("NPDES") permit authorities (either EPA or states with delegated permit authority) on a site-specific basis based on factors including costs, benefits, and environmental side-effects of available technologies. 76 Fed. Reg. at 22,207. EPA considered the establishment of performance standards based on closed-cycle cooling systems (which cool and recirculate water for reuse), but found that installing closed-cycle cooling systems was not "practically feasible" at all sites based on factors related to energy reliability, air emissions permits, land availability, and remaining useful life of the facilities. *Id.*

EPA appropriately determined that the proposed section 316(b) rule for existing facilities is not likely to adversely affect listed species. In its June 18, 2013 letter on initiation of formal consultation, EPA states:

> Because the section 316(b) rule will reduce impacts to listed species from cooling water [in]take structures, the Agency continues to believe that it will not cause adverse effects and will benefit affected species . . . . Nonetheless, the EPA has decided to request formal consultation to ensure full and expeditious consideration of the impacts to listed species under section 7(a)(2).[5]

In addition, although the available copy of EPA's biological evaluation ("BE") for the section 316(b) rule is redacted, that copy indicates that EPA concluded that the rule will have only beneficial effects on listed species, although the "nature and magnitude of beneficial effects will be dependent" on a variety of factors.[6] EPA explained that the proposed section 316(b)

[5] *See* EPA Consultation Letter.
[6] EPA, ESA Biological Evaluation for CWA Section 316(b) Rulemaking at 90 (June 18, 2013).

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rule "reduces the adverse environmental impacts ("AEI") to aquatic biota and communities caused by withdrawals of water from streams, rivers, estuaries and coastal marine waters by CWISs."[7]

We agree that EPA's proposed section 316(b) rule for existing facilities will not cause adverse effects to listed species. Indeed, there is no evidence in the administrative record that the rule is likely to cause adverse effects. Rather, the administrative record demonstrates that the effects of the proposed rule will be "completely beneficial." Handbook at 3-12. Therefore, the proposed rule should not be subject to formal consultation under section 7. *Id.*[8]

C. The Services Should Have Concluded Informal Consultation by Issuing a Not Likely to Adversely Affect Concurrence.

The regulations, the Handbook, and case law all support issuance of a "not likely to adversely affect" concurrence for EPA's proposed section 316(b) rule because, as EPA determined, the proposed section 316(b) rule will have only beneficial effects on listed species. A "not likely to adversely affect" determination is appropriate "when effects on listed species are expected to be discountable, or insignificant, or completely beneficial." Handbook at 3-12; *see Friends of the Wild Swan v. U.S. Forest Serv.*, 875 F. Supp. 2d 1199, 1209 (D. Mont. 2012). Thus, the Services should have issued a "not likely to adversely affect" determination for the proposed section 316(b) rule, thereby concluding informal consultation.

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[7] *Id.* at 1.

[8] EPA has not previously engaged in formal consultation on any prior section 316(b) rulemakings, nor was it required to do so. In fact, during the Phase I rulemaking EPA stated, "The regulation does not authorize any activity that may have an effect on listed species. Rather, it sets minimum, technology-based standards for the location, design, construction and capacity of intake structures that must be met in NPDES permits issued to facilities that withdraw water for cooling purposes." EPA, Response to Public Comment, National Pollutant Discharge Elimination System -- Regulations Addressing Cooling Water Intake Structures for New Facilities, at 120 (Jan. 2, 2002) (briefly referred to by EPA as "Response to Public Comment: CWA Section 316(b) New Facility Rule – Final").

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II. The Only Effects of the Section 316(b) Rule on Listed Species or Critical Habitat Are Incremental Impacts of the Rule in Relation to Existing Baseline Conditions.

Congress plainly stated in ESA section 7(a)(2) that the purpose of consultation is to determine whether "*action authorized, funded, or carried out*" by an agency is likely to cause jeopardy or adverse modification. 16 U.S.C. § 1536(a)(2). Likewise, Congress specified that a biological opinion must "detail[] how the agency action affects the species or its critical habitat." *Id.* § 1536(b)(3)(A). The statute makes plain that the focus of consultation is on the effects to species *that result from an agency's action*. Correspondingly, the consultation regulations specify that the "effects of the action" are the "direct and indirect effects of an action . . . that will be *added to the environmental baseline*." 50 C.F.R. § 402.02 (emphasis added). The baseline is comprised of "*past and present*" impacts of activities as well as anticipated impacts of other actions "that have *already undergone*" consultation. *Id.*

Although EPA correctly concluded that the section 316(b) rule will have only beneficial effects on listed species, EPA confused the analysis by stating that the section 316(b) rule "may allow as many as 215 [threatened and endangered] species and 30 critical habitats of [threatened and endangered species] to continue to be affected." *See* EPA Consultation Letter. EPA's statements with respect to effects that will "continue" and the Services' apparent refusal to concur in a "not likely to adversely affect" determination point to a crucial flaw in the agencies' analysis that must not be allowed to misdirect the consultation process.

Baseline effects that exist prior to and "continue" after an action are not effects of the action. Rather, the effects of an action are those effects caused by a specific agency action (here the proposed section 316(b) rule), and which are "added to the environmental baseline." 50 C.F.R. § 402.02. The effects of the proposed section 316(b) rule manifestly will be to reduce baseline effects to listed species, not add to those effects. To the extent that EPA's statement may be interpreted to treat "continued" baseline effects as effects of the proposed section 316(b) rule, that interpretation must be rejected as inconsistent with the statute and regulations. EPA otherwise maintains in its letter that the rule will "reduce impacts to listed species from cooling water [in]take structures" and "will not cause adverse effects." EPA Consultation Letter. Indeed, in its BE for the proposed section 316(b) rule, EPA states, "The implementation of the proposed action does not authorize any new activities or increased discharge of pollutants that would increase effects on ESA listed species. In fact, this action is likely to reduce or minimize the potential effects of CWIS-related [impingement and

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entrainment mortality] on ESA-listed species whose habitat overlap with the withdrawal and discharge zones of these facilities." BE at 77.

As the statute, regulations and Handbook make plain, the effects of the section 316(b) rule are to be determined based on changes to current baseline conditions today, and not based on whether baseline conditions continue or on additional restrictions that the agencies may believe that EPA *could* impose in the new rule. Thus, agencies must determine the effects of the rule based on the reductions in impingement and entrainment that would result from EPA's proposed rule.

A. A "May Affect" or "Adversely Affect" Determination Must Be Based on the Incremental Impact Resulting From the Proposed Action.

It is essential for the Services to recognize that a "may affect" or "adversely affect" determination must be based on the incremental impact to listed species or critical habitat that results from the proposed section 316(b) rule, not from baseline conditions, and not based on whether the section 316(b) standard could have been *more protective* of listed species.

Effects are determined based on changes that result from the specific agency action in relation to baseline conditions without the agency action. The regulations define "effects of the action" as the "direct and indirect effects of an action . . . that will be added to the environmental baseline." 50 C.F.R. § 402.02. The environmental baseline includes "past and present impacts of all Federal, State, or private actions and other human activities in the action area," as well as "anticipated impacts" of other proposed federal agency actions "that have already undergone" consultation. *Id.*

The Handbook explains that the baseline is a "snapshot" of "the current status of the species" and "does not include the effects of the action under review." Handbook at 4-22. Accordingly, a "may affect" or "adversely affect" determination should be based on the incremental impact on listed species that result from the agency action under consultation, not on impacts attributable to other past, present, or future actions. *See Nat'l Wildlife Fed'n v. NMFS*, 524 F.3d 917, 929-930 (9th Cir. 2007); *In re Consolidated Salmonid Cases*, 791 F. Supp. 2d 802, 932 (E.D. Cal. 2011).

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In *National Wildlife Federation*, the U.S. Court of Appeals for the Ninth Circuit addressed what effects should be considered in the environmental baseline when analyzing a plan for the continuing operation of an existing federal dam system. *Nat'l Wildlife Fed'n,* 524 F.3d at 930. The agency had assessed the effects of the proposed plan in comparison to a "reference operation" consisting of a hypothetical regime of operating the dams that "was the most beneficial to listed fishes of any possible operating regime." *Id.* at 926. The court rejected the "reference operation" approach, finding that the analysis must focus on the action's effects "when added to the underlying baseline conditions." *Id.* at 929. The court distinguished the effect of the agency's proposed *operation* of the dams, which was at issue in the rulemaking and would be considered in the "effects of the action," from the effects on listed species of "[t]he current *existence* of the FCRPS dams," which "must be included in the environmental baseline" as an existing human activity. *Id.* at 930 (emphasis added). *National Wildlife Federation* demonstrates that the effects of an action (in this case the section 316(b) rule for existing sources) must be determined based on changes that result from that action in relation to baseline conditions without the agency action, focusing on the additional harm or benefit caused by the action.

B. The Effects of the Proposed Section 316(b) Rule Are the Beneficial Impacts on Listed Species of Imposing the New Requirements for Cooling Water Intake Structures.

In the context of the section 316(b) rulemaking, the "effects of the action" (to the extent the rule can be said to have any effect at all) are the effects on listed species of establishing the new requirements for cooling water intake structures that will be promulgated in the section 316(b) rule. The intake structures subject to this regulation already exist. This rule does not authorize the creation of any new intake structure, nor does the rule authorize the continued operation of existing structures. Allocating and authorizing the withdrawal of water by specific users from specific waters is largely the prerogative of the states or other federal agencies. And the United States Army Corps of Engineers is separately responsible for permitting the placement of structures or other work in navigable waters or waters of the United States. This rule does not authorize any of these activities, nor does it purport to authorize the take of any listed species. Rather, EPA's action is the imposition of new restrictions on existing cooling water intake structures that will reduce impacts related to impingement and entrainment. Therefore, to the extent that EPA's section 316(b) rule can be said to have any effect on listed species or critical habitat, any such effects would be limited

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to reductions in effects of previously authorized intake structures as a result of proposed impingement mortality performance standard and site-specific entrainment requirements. The only effects of the rule on listed species or critical habitat would be purely beneficial. The current status of listed species, and any harms they may face from ongoing cooling water intake structure operations, are part of the environmental baseline and are not caused by the section 316(b) rulemaking.

EPA's finding that its proposed section 316(b) rule would not adversely affect listed species is well grounded and supported by the administrative record. EPA found that the proposed rule "will reduce the current mortality of aquatic organisms," and that only the "magnitude of mortality reduction" is still in question. EPA Consultation Letter. Thus, the effects will be completely beneficial, and while there may be some question *how* beneficial those effects will be, a biological opinion is not needed to determine the degree of benefits nor do comparative benefits provide a basis for regulation under the auspices of formal consultation. The fact that the only expected effects will be beneficial justifies a "not likely to adversely affect" determination.

While perhaps inadvertent, we are however troubled by EPA's statement in its Consultation Letter that "the rule may *allow* as many as 215 [listed] species and 30 critical habitats of [listed] species to *continue to be affected*." EPA Consultation Letter (emphasis added). This statement could be read to suggest that EPA has adopted a faulty analysis of ESA section 7 requirements that attributes any adverse baseline effects that remain after an agency action to the agency action.[9] By such reasoning, any protective agency rulemaking would be required to either eliminate all adverse baseline environmental effects, or be deemed the cause of those

[9] In joint comments submitted by environmental groups including Riverkeeper, Sierra Club, and NRDC, the groups assert that EPA was required to consult on the effect of the rule's "authoriz[ation of] continued operation of existing cooling water intake structures in a manner that EPA claims will at best 'minimize' over an extremely extended schedule – and, significantly, will not end – the killing of fish and other aquatic organisms, as well as the wholesale degradation of aquatic ecosystems by CWISs." Riverkeeper, et al., Comments on National Pollutant Discharge Elimination System, Cooling Water Intake Structures at Existing Facilities and Phase I Facilities, 76 fed. Reg. 22,174 (April 20, 2011), Docket No. EPA-HQ-OW-2008-0667 at 136 (Aug. 18, 2011), *available at* http://insideepa.com/iwpfile.html?file=jul2013%2Fepa2013_1247b.pdf (hereinafter, "Riverkeeper, et al., Comments"). The groups cite *Defenders of Wildlife v. EPA*, 882 F.2d 1294, 1300 (8th Cir. 1989), but that decision is inapposite. *Defenders* involved allegations that EPA was liable for incidental takes caused by granting FIFRA registrations for use of strychnine pesticides, not failure to consult. Moreover, here EPA is not authorizing activity but rather is placing restrictions on activity (CWIS operations).

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effects. Such an approach is not only unworkable, it is unsupported by the legislative history and inconsistent with the ESA.[10] That approach would remove the operation of existing cooling water structures from the environmental baseline, with no lawful basis for doing so. Thus, EPA and the Services should not hold private discussions to devise potential requirements *more protective* of listed species under the guise of section 7 consultation, but must instead focus on whether the proposed rule is likely to cause jeopardy or adverse modification. Under the Act, the Services' regulations, and the Handbook, the continuing operations of cooling water intake structures (which predate the proposed section 316(b) rule) form the baseline, and the effects of the rule must be measured against that baseline. *See* 50 C.F.R. § 402.02; Handbook at 4-22.

Consulting on whether an alternative version of the proposed rule could be even more beneficial to listed species, rather than on the effects of the rule as proposed, would result in an unworkable, precedent-setting standard for section 7 consultation. For every protective regulation, the action agency would have to consult with the Services on what more could be done to protect listed species, and any adverse effects that would remain *after* the rule would be attributed to the rule even though not caused *by* the rule. Such an approach is not supported by precedent or law. The ESA consultation procedures do not require agencies to take actions that maximize benefits to listed species: they prohibit agencies from jeopardizing species. *Sw. Ctr. for Biological Diversity v. U.S. Bureau of Reclamation*, 143 F.3d 515, 523 (9th Cir. 1998) (ESA section 7 does not require FWS to "pick the best alternative or the one that would most effectively protect the Flycatcher from jeopardy.").

In sum, the agencies are required to treat the continued operation of regulated cooling water intake structures as currently regulated as part of the environmental baseline and may not attribute ongoing baseline effects to the section 316(b) rulemaking. Moreover, under ESA section 7(a)(2), the agencies must consult to ensure that the agency action is "not likely to jeopardize the continued existence of any [endangered or threatened] species or result in the destruction or adverse modification of habitat." 16 U.S.C. § 1536(a)(2). It is inconsistent

[10] 16 U.S.C. § 1536(a)(2) (agency shall consult on "action authorized, funded or carried out *by such agency*") (emphasis added); S. Rep. No. 95-874 at 6 (May 15, 1978) Federal agencies have a responsibility to identify activities and programs *which they undertake* that may affect listed species or their critical habitat and to request consultation with the Services concerning those activities or programs. Thus, the consultation process must be initiated at that point in the implementation of the action where the Federal agency first recognizes that *the activity* may have a detrimental effect on a species or its critical habitat.) (emphasis added).

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with and unsupported by the ESA for the agencies to "consult" on whether the action agency could further increase the benefits of an action.

C. Any Analysis of Baseline Environmental Conditions or the Effects of the Proposed Rule Must Be Based on Scientific Data.

As explained above, the baseline includes the potential effects to threatened and endangered species and critical habitat of the continued operation of intake structures as currently regulated. The scope of the consultation on the effects of EPA's new section 316(b) rule is limited to effects of only that action, namely reduced impingement and entrainment resulting from the proposed impingement mortality performance standard and site-specific entrainment requirements. When analyzing baseline effects and any effects of the proposed rule to be added to the baseline, EPA must use the "best scientific and commercial data available." *Id.* The Supreme Court emphasized, in *Bennett v. Spear*, that the "obvious purpose of the requirement that each agency 'use the best scientific and commercial data available' is to ensure that the ESA not be implemented haphazardly, on the basis of speculation or surmise." *Bennett v. Spear*, 520 U.S. 154, 176 (1997).

We are concerned that, despite the plain requirement to use scientific data rather than rely upon speculation or surmise, the BE is characterized by a lack of such data. The BE repeatedly notes uncertainty as to locations of facilities with intake structures, and a "dearth of [impingement and entrainment mortality] monitoring data." BE at 8, 37. In particular, EPA lists eight main sources of uncertainty with respect to effects on individual species, including: lack of data on the universe of facilities to be regulated; uncertainty with respect to the location of facilities relative to associated listed species habitat; variability of facilities' intake structure water withdrawal volume; lack of data with respect to the location and depth of intake structures within receiving waters; variability with respect to the nature and degree of required intake structure modifications; variability with respect to the accuracy of habitat delineations; variability with respect to beneficial effects among functional groups; and uncertainty with respect to the size or importance of listed species habitat that may be affected. *See* BE at 89.

In an attempt to be "highly conservative" in its assessment of baseline effects or effects of the proposed rule, BE at 20, EPA appears to have resorted to speculation and surmise rather than scientific data. For example, EPA noted the "high degree of geographic uncertainty" as to the

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location of facilities that may be subject to the proposed action, and the unavailability of relevant data regarding possible overlap of these facilities with the habitat of listed species. *Id.* EPA acknowledged that, for many facilities, the "specific environmental settings, baseline technologies used to reduce the effects of CWIS, any prior consultation with the Services (through other permitting programs, for example) and characteristics of receiving waters are unknown." *Id.* EPA thus engaged in a "worst case analysis" when assessing the potential overlap of existing cooling water intake structures (baseline conditions) and listed species. *Id.* at 54. Worst case analyses, and other forms of speculation or surmise, are no substitute for the requirement to use the "best scientific and commercial data available" in analyzing effects of baseline conditions (much less effects of the proposed rule). 16 U.S.C. § 1536(a)(2).

III. The Agencies Should Conclude Consultation On the Section 316(b) Rule With a "Not Likely to Adversely Affect" Concurrence Or A "No Jeopardy" Biological Opinion.

The Services should issue a "not likely to adversely affect" concurrence for EPA's proposed section 316(b) rule because, as explained above, the proposed section 316(b) rule will have only "completely beneficial" effects on listed species. Notwithstanding the fact that informal section 7 consultation should have been the proper consultation avenue in this instance; when formal consultation is undertaken, as it has been for the section 316(b) rule, consultation may be similarly concluded with a "not likely to adversely affect" concurrence. 50 C.F.R. § 402.14(l)(3). Such an approach would save significant time and costs, and is the far more appropriate course of action here. Otherwise, the consultation must conclude with a "biological opinion" from FWS or NMFS, which states the opinion of the Service whether jeopardy to listed species or adverse modification of critical habitat is likely. *Id.* § 402.14(l)(1). If the Services choose to issue a biological opinion, based on the facts in the administrative record and the law, that biological opinion must find that no jeopardy or adverse modification will occur as a result of the section 316(b) rule.

If the Services conclude in a biological opinion that no jeopardy or adverse modification will occur, the action may proceed as proposed in compliance with section 7(a)(2). Only if a biological opinion concludes that the proposed action will result in jeopardy to one or more listed species or in adverse modification to designated critical habitat (both of which are prohibited by ESA section 7) is there a basis for the Services to suggest "reasonable and prudent alternatives" ("RPAs"). 16 U.S.C. § 1536(b)(3)(A).

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To "jeopardize" means to take action that would be expected to "reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species." 50 C.F.R. § 402.02. Courts have made clear that distinguishing between the environmental baseline and the *new* effects of the agency action is essential to determine whether agency action will jeopardize listed species. Effects that pre-date the agency action are not a basis for jeopardy or adverse modification. "Agency action can only 'jeopardize' a species' existence if that agency action causes some deterioration in the species' pre-action condition." *Nat'l Wildlife Fed'n*, 524 F.3d at 930. The term jeopardize "implies causation, and thus some *new* risk of harm." *Id.* (emphasis added). Accordingly, even where a species is already in jeopardy, "[a]n agency may still take action that removes a species from jeopardy entirely, or that *lessens the degree* of jeopardy." *Id.* (emphasis added).

EPA explained during informal consultation that the proposed section 316(b) rule does not present any new risk of harm to listed species: its restrictions on cooling water intake structures result only in beneficial impacts. Even *if* the continued existence of some species were already in jeopardy and would remain in that state after the section 316(b) rule requirements take effect, the rule itself will not "jeopardize" those species because it would only "lessen[] the degree of jeopardy." *Id.*

Additionally, whether or not EPA could adopt a section 316(b) rule that is *more* protective of listed species does not alter the outcome of the jeopardy analysis in this case, because the rule itself does not result in jeopardy or adverse modification. Again, the ESA does not require agency actions to maximize benefits to listed species; it merely prohibits them from jeopardizing species. *See Sw. Ctr. for Biological Diversity*, 143 F.3d at 523. Thus, the Services must limit their jeopardy analysis to whether the incremental effect of the section 316(b) rule, considering the environmental baseline, jeopardizes the continued existence of listed species or adversely modifies critical habitat. Because the section 316(b) rule will have only beneficial effects, should the Services elect to prepare and issue a biological opinion (which, as explained above, is neither warranted nor required under 50 C.F.R. § 402.14(l)(3)), the biological opinion must conclude that no jeopardy or adverse modification will occur, and the section 316(b) rule must be allowed to proceed as proposed.

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IV. The Consultation Process Must Not Result in the Imposition of New Restrictions to the Final Section 316(b) Rule.

ESA consultation procedures provide no basis for the imposition of additional restrictions where, as here, only beneficial effects will occur. Thus, the consultation process should not result in the imposition of new restrictions in the final section 316(b) rule.

Even in cases (unlike here) where a proposed action will result in jeopardy or adverse modification (thus permitting the Services to suggest RPAs), the Services may not suggest alternatives that exceed the action agency's authority. Any RPA suggested in a biological opinion must be able to "be implemented in a manner consistent with the intended purpose of the action, . . . consistent with the scope of the Federal agency's legal authority and jurisdiction, [and] economically and technologically feasible . . . ." 50 C.F.R. § 402.02.[11] Thus, even if a jeopardy opinion could be reached in this case – which it could not – the Services would not have the authority to attempt to override EPA's determinations that, for example, performance standards based on closed-cycle cooling are not feasible. Thus, even in such a setting, EPA would be required to reject any approach to modify the draft rule to require existing facilities to meet closed-cycle cooling performance standards, and to "obtain the opinions of its sister federal agencies on the Proposed Rule's impact upon threatened and endangered species and the advisability of reasonable and prudent alternatives, such as a nationally uniform closed-cycle cooling standard."[12] "EPA concluded that closed-cycle cooling is not the best technology available for minimizing adverse environmental impact on a national basis. The record shows that closed-cycle cooling is not practically feasible in a number of circumstances." 76 Fed. Reg. at 72,207.

Nor can the agencies add restrictions to the final section 316(b) rule arising from closed-door consultation procedures, rather than public notice and comment rulemaking procedures, without violating the APA. Under the APA, "if the final rule deviates too sharply from the proposal, affected parties will be deprived of notice and an opportunity to respond to the

[11] The Handbook emphasizes cooperation with action agencies when determining RPAs, and acknowledges that action agencies have the "project expertise necessary to help identify reasonable and prudent alternatives." Handbook at 4-7. Accordingly, the Handbook provides that action agencies "should be given every opportunity to assist in developing" RPAs, and that "[o]ften they are the only ones who can determine if an alternative is within their legal authority and jurisdiction, and if it is economically and technologically feasible." Handbook at 4-43.

[12] Riverkeeper, et al., Comments at vii.

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proposal." *Small Refiner Lead Phase-Down Task Force v. EPA*, 705 F.2d 506, 547 (D.C. Cir. 1983). To comply with the APA, the final rule must be a "logical outgrowth" of the proposed rule. *United Steelworkers of America v. Marshall*, 647 F.2d 1189, 1315 (D.C. Cir. 1981).

V. Conclusion

In sum, formal consultation on the section 316(b) rule is unwarranted and should be promptly concluded with a not likely to adversely affect concurrence. 50 C.F.R. § 402.14(l)(3). If the agencies nonetheless continue with formal consultation, they must evaluate the effects of the proposed section 316(b) rule based on changes to current baseline conditions today, not based on whether baseline conditions continue or on additional restrictions that the Services may believe that EPA *could* impose in the new rule. Because the proposed rule will have only completely beneficial effects, the Services should conclude consultation with a "not likely to adversely affect" concurrence or a biological opinion finding that no jeopardy or adverse modification will occur as a result of the rule.

We hope that the agencies will work to address the issues set forth in this letter during the consultation. If you would like to discuss this matter further, please contact Kristy Bulleit at (202) 955-1547 or Andrew Turner at (202) 955-1658. Thank you for your attention to this matter.

Sincerely,

Andrew S. Turner

for Kristy A. N. Bulleit

SUPER LAW GROUP, LLC

October 31, 2013

Via Electronic Mail and U.S. Mail

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Re: Comments of Riverkeeper, Sierra Club, Natural Resources Defense Council, Center for Biological Diversity, American Littoral Society, Southern Alliance for Clean Energy, Environment America, Earthjustice, Delaware Riverkeeper Network, New York/New Jersey Baykeeper, Casco Baykeeper, Los Angeles Waterkeeper, and the Waterkeeper Alliance Regarding ESA Biological Evaluation for CWA Section 316(b) Rulemaking and Initiation of Formal Consultation on EPA's Final Regulations to Establish Requirements for Cooling Water Intake Structures at Existing Facilities and Amend Requirements at Phase I Facilities.

Dear Ms. Wieting and Mr. Frazer,

We write on behalf of Riverkeeper, Sierra Club, Natural Resources Defense Council, Center for Biological Diversity, American Littoral Society, Southern Alliance for Clean Energy, Environment America, Earthjustice, Delaware Riverkeeper Network, New York/New Jersey Baykeeper, Casco Baykeeper, Los Angeles Waterkeeper, and the Waterkeeper Alliance ("Commenters"). On June 18, 2013, the U.S. Environmental Protection Agency submitted to you a Biological Evaluation, supporting materials, and a request for formal consultation, pursuant to Section 7(a)(2) of the Endangered Species Act, with the National Marine Fisheries Service and the U.S. Fish & Wildlife Service (individually "NMFS" and "FWS", and together "the Services"). The subject of this consultation is EPA's pending release of final regulations to

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implement Section 316(b) of the Clean Water Act at existing industrial facilities. Section 316(b) requires EPA to establish regulations that minimize the adverse environmental impact of cooling water intake structures at industrial facilities that are subject to the National Pollutant Discharge Elimination System ("NPDES").

We have reviewed the Biological Evaluation and supporting materials prepared by EPA, and we are deeply concerned. EPA has not complied with its duty to assist the Services in issuing a Biological Opinion ("BiOp") by providing "the best scientific and commercial data available or which can be obtained during the consultation for an adequate review of the effects that an action may have upon listed species or critical habitat." 50 C.F.R. § 402.14(c). We have prepared this letter and supporting materials[1] to assist the Services in obtaining the best available data in order to reach a thorough, comprehensive, and reasoned opinion as to whether EPA's rule "is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat." 50 C.F.R. § 402.14(g)(4).[2]

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[1] The supporting materials referred to below are voluminous, totalling over 90 MB. Thus in addition to sending this letter via electronic mail, we will also send you a hard copy of this letter along with a compact disc of the supporting materials.

[2] "Jeopardy," with its focus on the survival and recovery of the species, and "the adverse modification of critical habitat" that is prohibited under the ESA, 16 U.S.C. §1536(c)(2), are *not* equivalent or interchangeable terms. *Sierra Club v. U.S. Fish and Wildlife Service*, 245 F.3d 434, 441-43 (5th Cir. 2001). Therefore, EPA and the Services must analyze each of these elements and not "jeopardy" alone.

1. Summary

EPA's Biological Evaluation for its proposed cooling water system regulations falls far short of the requirements of the Endangered Species Act. The agency is about to finalize a rule that authorizes power plants to continue operating once-through cooling water intakes that kill many hundreds of billions of organisms annually, including millions of threatened and endangered fish and other animals. The rule also has adverse effects on the habitats of hundreds of endangered species in an action area that includes nearly every major waterbody in the United States. EPA has approached the Services very late in the rulemaking process, within months of a court-ordered deadline to promulgate a final rule, and stated that, even after years of research and policy formulation, it has collected almost none of the information the Services need to determine whether continued operation of these cooling water intakes will avoid jeopardizing the survival or the recovery of listed species or adversely modify their critical habitat.

EPA did conclude that cooling water intakes harm endangered species both directly and indirectly, that cooling water intakes overlap with habitat used by 215 listed aquatic species,[3] that there are 21,039 potential interactions between a particular intake and a particular species (meaning that, on average, each species is affected by nearly 100 intakes),[4] that 94% of all intakes overlap with at least one listed species,[5] and that 153 facilities kill fish and release waste heat in more than 290 designated critical habitats.[6] Clearly, the risks of harm to endangered species are both widespread and substantial.

But, with only a handful of exceptions, EPA claims to be unable to quantify or even qualitatively describe the extent of these harms with respect to particular endangered species in particular waterbodies. EPA knows that a great deal of harm is occurring generally, but claims to be unaware of how any particular endangered or threatened populations are holding up under the continued onslaught of habitat modification, impingement, and entrainment caused by cooling water systems regulated under its new rule.

Not having done its homework, EPA now seeks a blank check from the Services to allow power plants to kill endangered species on the flawed basis that its rule may marginally reduce the number of endangered animals that EPA authorizes power plants to kill every year. Of course, any reduction in the killing of endangered species is welcome. But where EPA's regulations allow power plants to kill millions of endangered animals every year, the question is not whether a change that may prevent the deaths of a few animals is good, but whether an EPA action that authorizes the continued killing of millions more jeopardizes the survival or recovery of these species or results in the destruction or adverse modification of critical habitat.

The limited and inadequate record that EPA has presented to the Services cannot support a no jeopardy finding. In fact, the evidence that EPA has provided is so deficient that it likely cannot support any serious analysis by the Services. As Commenters note below, EPA has ignored a wealth of readily available information about the impacts of cooling water intakes on listed species that is available in the academic literature, in government reports authored by other agencies, and even in EPA's own records.

The Services should demand that EPA actually provide them with the best available scientific and commercial data to support a biological analysis. Failing that, the Services must gather and analyze for themselves the readily available information that EPA has ignored, some of which Commenters have attached to this letter.

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[3] *See* Biological Evaluation ("BE") at 60.

[4] *See id.* at 60.

[5] *See id.* at 61.

[6] *See id.* at 60 and Table 7-1, 83-88.

Finally, if the Services decide not to seek better information at this time and instead choose to issue Biological Opinions (BiOps) with such a poor base of information and so much residual uncertainty about the harms done by EPA's rule to various listed species, the only possible conclusion is that EPA's proposal to continue the operation of hundreds of existing cooling water systems jeopardizes the continued existence of numerous endangered species, including a number of salmonid and sturgeon Distinct Population Segments, and various species of freshwater mussel. And the only reasonable and prudent alternative to EPA's rule that can avoid jeopardy is a requirement to use closed-cycle cooling at most or all large cooling water intakes, and a requirement for cooling water intake operators to adopt significantly better monitoring practices to measure and avoid impacts on endangered species.

2. Background: significance of the Biological Evaluation

EPA acknowledges in the Biological Evaluation that the status quo it has tolerated for decades, largely unrestricted killing of listed species by cooling water intakes, is illegal:

> EPA acknowledges that T&E species have been impacted by CWIS (as documented in Section 3.0) and recognizes that any take of listed species without an incidental take statement or ESA Section 10 take permit is in violation of ESA regulations. . . . [EPA] does not suggest that the status quo, which includes the take of T&E species, is acceptable.[7]

EPA also admits that it is starting from an incredibly poor understanding of the context: there are enormous gaps in EPA's understanding of how many endangered animals are killed by cooling water intakes. EPA's best quantitative estimate looks at just 20 out of the 215 listed species that EPA believes are affected by this rule. Based on documented kills, most of which are not extrapolated out to population-wide values, EPA nonetheless reckons that the annual take of endangered species easily runs to more than 10 endangered sea turtles, 600 Chinook salmon, 60,000 smelt, and 790,000 sturgeon, along with unknown millions of other threatened and endangered organisms from dozens (and possibly hundreds) of different listed species. Sadly, EPA provides the Services with absolutely no information on population viability, distribution, or trends – even for those twenty species – to help put these very limited figures in context.

On this flimsy basis, EPA is asking the Services to opine that a rule that perpetuates this status quo of blind and unmitigated killing, a rule that allows continued operation of once-through cooling systems with only the slightest of reductions in harm, will not jeopardize the continued existence of listed species. But at best, EPA's proposed rule,[8] which was based on a numeric impingement standard and a case-by-case, open-ended decision making process for

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[7] *Id.* at 65.

[8] *See* EPA, *National Pollutant Discharge Elimination System – Cooling Water Intake Structures at Existing Facilities and Phase I Facilities*, Proposed Rule, 76 Fed. Reg. 22,174 (April 20, 2011) (the "Proposed Rule").

entrainment, will have little effects on the number of fish killed. In fact, as explained more fully below, EPA's proposed rule could actually increase the number of fish killed by cooling water intakes. And since the rule likely will not reduce the capacity or flow of cooling water systems (and may even increase them), by extension, the rule also will not reduce the discharge of thermal and chemical pollution from EPA-regulated facilities. Based on the proposal, it appears that EPA may have decided to carry out the mandate of Section 316(b) of the Clean Water Act by creating a rule that allows cooling water systems throughout the United States to kill hundreds of billions of organisms, and discharge thousands of Petajoules of waste heat, fundamentally altering thousands of miles of riverine and estuarine habitat.[9]

The importance of this consultation may be unprecedented for two other reasons. First, almost none of this harm to endangered species has ever been evaluated under the ESA before. Astoundingly, although the ESA has been law for 40 years, EPA has never asked systematically whether these staggering fish kills and ecosystem modifications jeopardize either the survival or recovery prospects of listed species or destroy or adversely modify critical habitat.

Second, because the Clean Water Act is largely administered by the States, there are no other opportunities to evaluate the systemic impact of cooling water intakes on the recovery and survival of endangered populations. With the exception of a handful of facilities owned or controlled by federal agencies, or whose NPDES permits are issued directly by the federal government, this rulemaking is the single federal action that authorizes continuing operation of thousands of cooling water intakes and thermal discharges throughout the United States.

Therefore, this is the only opportunity to conduct an ESA analysis and issue an incidental take statement from a comprehensive perspective that looks at the full range of impacts on the entire U.S. population of most of these endangered and threatened species. This makes EPA's failure to provide the best available commercial and scientific data on the effects of its action and the status of affected species all the more problematic. Any subsequent BiOp and Incidental Take Statement ("ITS") by the Services based on this inadequate compilation or evaluation of data would similarly be inadequate.

3. Complexity and completeness

Unquestionably, this consultation will lead to one (or two) of the most complex and ecologically significant BiOps that the Services have ever been asked to render. Yet the task is

[9] EPA's BE and its proposed rule should take into account and be coordinated with the States' CWA §303(d) lists, to determine whether the waters impacted by cooling water intake and subsequent discharge are listed due to habitat degradation, temperature, dissolved oxygen levels, or other factors related to once-through cooling water intakes. And EPA should consider the effect of its proposed rule on total maximum daily loads (TMDLs) for temperature in impaired waters, or the absence of such TMDLs. As the lists and TMDLs are subject to EPA approval, they are in EPA's possession and should be considered "available" data.

far from insurmountable. And the federal courts have demanded complete, thorough BiOps that meet all of the ESA's standards in similar or even more complex situations in the past.

For example, because of the national reach and complex effects of pesticides, the Section 7 consultation handbook describes pesticide registration BiOps as among the most complex ever undertaken. Yet NMFS has developed BiOps to support multiple pesticide registrations, one of the notable was EPA's re-registration of six widely used pesticides, including chlorpyrifos, diazinon, and malathion. The 482 page final BiOp concluded that re-registration of those three pesticides jeopardized 28 endangered salmonids and 26 critical habitats. *See Dow AgroSciences LLC v. Nat'l Marine Fisheries Serv.*, 707 F.3d 462, 466 (4th Cir. 2013).

A few years after drafting the consultation handbook, NMFS issued a global BiOp covering the U.S. military's use of Low Frequency Active Sonar from hundreds of ships, located across millions of square kilometers of ocean, in nearly every waterbody on the planet. In that case, NMFS was asked to evaluate the impact of sonar use upon uncounted millions of marine mammals and other animals including endangered species of whales, dolphins, seals, sea turtles and salmon. *See NRDC v. Evans*, 364 F. Supp. 2d 1083 (N.D. Cal. 2003).

The Services also developed a BiOp for the Forest Service on its ongoing use (which began in 1955) of chemical fire retardants throughout all National Forest System Lands. *Forest Serv. Emples. for Envt'l Ethics v. United States Forest Serv.*, 726 F. Supp. 2d 1195, 1202 (D. Mont. 2010). In that case, the Fish and Wildlife Service defined the action area as "all National Forest System lands (totaling 192 million acres) together with a buffer area surrounding those lands" while NOAA Fisheries defined the action area "broadly to encompass lands and waters of the United States with particular emphasis on [Forest Service] lands and adjacent properties." *Id.* Together, the Services considered effects upon 414 listed species. *See id.*

Notably, although the Services completed dauntingly complex BiOps in these cases and others, the courts rejected aspects of these final BiOps because either the action agency or the consulting agency attempted to cut corners. The *Dow AgroSciences* court vacated and remanded the pesticide BiOp primarily because NMFS failed to explain its modelling and chose to rely on water quality data that it acknowledged was outdated and inaccurate, while overlooking more recent data. *See Dow AgroSciences LLC.*, 707 F.3d at 475. Similarly, the *NRDC v. Evans* court rejected the LFA sonar BiOP's conclusions because NMFS authorized adverse modification of critical habitat that was necessary to the recovery of various species and the military deliberately withheld some of the best available scientific information from NMFS, leading NMFS to ultimately issued a no jeopardy opinion that did not include the required incidental take statement. *See NRDC*, 364 F. Supp. 2d at 1127-1139. Finally, the *Forest Service Employees for Environmental Ethics* court rejected the Forest Service's and Fish and Wildlife Service's claims that it was just too hard to do a proper BiOp for "a consultation that involved 387 species and an action area of more than 192 million acres." Cite. The court explained that "Defendants cannot excuse the failure to comply with the law Congress passed by arguing that compliance would be too hard." *Forest Serv. Empls. for Envt'l* Ethics, 726 F. Supp. 2d at 1224. Even when the Services are faced with a complex analytical task in a nationwide or global BiOp, the federal

courts demand and expect that final BiOps will meet the ESA's standards for comprehensive, detailed analysis. The courts will not tolerate illegal shortcuts, failure to consider habitat necessary for species recovery, action agencies that withhold the best available data, or Service BiOps that ignore that data.[10]

4. Despite EPA's failures, the Services must gather and use the Best Available Data.

The ESA requires the Services to base their BiOps on the best available commercial and scientific data regarding the effects of a proposed federal action and the status of the affected species. *See, e.g.*, *Conner v. Burford*, 848 F.2d 1441, 1454 (9th Cir. 1988) ("In light of the ESA requirement that the agencies use the best scientific and commercial data available to insure that protected species are not jeopardized, 16 U.S.C. § 1536(a)(2), the FWS cannot ignore available biological information"); *Miccosukee Tribe of Indians v. United States*, 566 F.3d 1257, 1265 (11th Cir. 2009) ("In deciding what is 'best available' the Service is required to seek out and consider all existing scientific data.") (quoting *Heartwood, Inc. v. U.S. Forest Serv.*, 380 F.3d 428, 436 (8th Cir. 2004)).

EPA's inadequate BE has left the Services ill-equipped to perform their duty. Under the ESA, EPA must support the Services in rendering their opinions by providing them "with the best scientific and commercial data available or which can be obtained during the consultation for an adequate review of the effects that an action may have upon listed species or critical habitat." 50 C.F.R. § 402.14(d). Instead, EPA has provided exactly the kind of input data to the Services, "limited in scope, heavy on general background information, and deficient in focused and meaningful discussion and analysis of how these large [fish takes], and complex management measures which regulate them, affect endangered [species]" that the courts have rejected when found in a final BiOp. *Greenpeace v. Nat'l Marine Fisheries Serv.*, 80 F. Supp. 2d 1137, 1148 (W.D. Wash. 2000). Those parts of EPA's Biological Evaluation describing the affected species and their habitats are written at a level of generality that prevents the Services from performing any meaningful analysis. And EPA has provided virtually no information to

[10] Although the courts hold the Services to the ESA's demanding standards, once those standards are met the courts will defend the Services' reasoning against all comers. This is illustrated nicely in *Greenpeace v. Nat'l Marine Fisheries Serv.*, where the district court rejected a vague, rushed, and inadequately researched NMFS BiOp for an Alaskan fishery that affected endangered Steller sea lions, condemning the BiOp and the quality of the data underlying that BiOp in harsh terms. *See* 80 F. Supp. 2d 1137 (W.D. Wash. 2000). Thirteen years later, in *State of Alaska v. Lubchenco*, the Ninth Circuit revisited a new BiOp governing the same fishery, and this time it upheld NMFS' BiOp against industry challenges. *State of Alaska v. Lubchenco*, 723 F.3d 1043 (9th Cir. 2013). The difference was that the subsequent BiOp, which concluded "that continuing to authorize fisheries at the levels previously authorized in the fishery management plans would both jeopardize the continued existence of the wDPS [of Steller sea lions] and adversely modify its critical habitat," did not repeat the earlier BiOp's mistakes of "focusing solely on a vast scale" and providing only vague information with little analysis. *Id.* at 1050, 1052. The second time around, NMFS more carefully "consider[ed] the impact of sub-populational decline on a species as a whole." *Id.* at 1052.

the Services about the status of the various populations of threatened and endangered species that are harmed by federally-regulated cooling water systems.

EPA claims that the kind of data that the Services need to their job properly simply do not exist, but this is plainly false. Through this submission, Commenters will do what they can to assist the Services in filling the large gap that EPA has left. It remains incumbent on both EPA and the Services, however, to comply with their respective statutory obligations to ensure that the final BiOp is based on the best available scientific data. It would be arbitrary, capricious, and in contravention of the ESA and APA, for either EPA or the Services to take final agency action in the absence of a first-rate effort on the part of all three agencies to obtain and analyze such data. The ESA does not allow the Services to issue a BiOp based on limited and incomplete analysis if some of the information needed is available but simply could not be analyzed in the time allowed. *Greenpeace*, 80 F. Supp. 2d at 1148. The Services have authority to request that EPA furnish the data necessary to ensure an informed analysis. *See* 50 C.F.R. § 402.14(f).

5. The Biological Evaluation is premised on an unlawful interpretation of the ESA.

At the outset, Commenters note that EPA is attempting to compensate for the deficiencies in its data provision by trying to move the ESA's goalposts. In the Biological Evaluation, EPA is clearly attempting to encourage the Services to accept two unlawful propositions as the basis for the BiOp:

- *EPA suggests that the BiOp should examine only how the rule will change the number of fish killed in comparison to current levels of impingement and entrainment.* For example, EPA's discussion of the "effects of the proposed action" begins with the statement: "This section evaluates the potential effect of the proposed action on ESA-listed species and designated critical habitats. This evaluation is based on comparison of the *baseline I&E* with that estimated under the final rule." BE at 73 (emphasis added). EPA then argues that its action is benevolent because "[t]he proposed action does not authorize any new activities or increased discharge of pollutants," BE at 81. And EPA concludes with the assertion that "[u]nder the final rule, regulated improvements in CWIS characteristics and operations will have the designed effect of reducing I&E mortality, which in turn is expected to have beneficial effects for some T&E species." BE at 90.

- *EPA also implies that the Services' BiOp need not include a thorough analysis of impacts on listed species or critical habitat because a full ESA analysis can be deferred to a later date.* For example, EPA states that "[u]nder the final rule, all regulated facilities are required to submit baseline source water biological characterization data. Among other data, these studies will identify T&E species present . . . [In addition the rule requires] entrainment studies [that] may identify IM&E of T&E species, information that will be considered by EPA in its determination of BTA for EM on a facility-specific basis, both at the facility

> conducting the IM&E study, as well as at nearby facilities." BE at p. 55. EPA repeats elsewhere in the BE that the five-year NPDES permit cycle provides "an opportunity to regularly review ESA issues and adjust discharge permit conditions or monitoring requirements as needed." BE at 4.

Both propositions are counterfactual and unlawful, as explained more fully below.

a. There is no such thing as "baseline I&E" or "baseline thermal discharge"

EPA's first tactic is a transparent effort to game the baseline for the forthcoming BiOp(s). Contrary to EPA's assertion, there is no such thing as "baseline I&E" (or "baseline thermal discharge"). EPA has regulatory options for implementing the mandate of Section 316(b), that is, how to minimize the adverse environmental impact of cooling water systems. Because EPA is authorizing continued operation of hundreds of existing cooling water intakes, the BiOp must look at the full impact of continuing to operate these intakes, including *all* continuing impingement and entrainment and discharges of thermal pollution, as well as all other impacts, in determining whether EPA's rulemaking jeopardizes the continued existence of any species or adversely modifies any designated critical habitat.

The ESA demands that federal agencies "afford first priority to the declared national policy of saving endangered species" in light of the "conscious decision by Congress to give endangered species priority over the 'primary missions' of federal agencies." *Tennessee Valley Auth. v. Hill*, 437 U.S. 153, 185 (1978). This means that "[w]hen an agency, acting in furtherance of a broad Congressional mandate, chooses a course of action which is not specifically mandated by Congress and which is not specifically necessitated by the broad mandate, that action is, by definition, discretionary and is thus subject to Section 7 consultation." *Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv.*, 524 F.3d 917, 929 (9th Cir. 2008). In this case, EPA's discretion in carrying out its duty under Section 316(b) of the Clean Water Act must be exercised in a manner that neither jeopardizes the recovery or survival of listed species nor adversely modifies critical habitat. *See, e.g., Am. Rivers, Inc. v. U.S. Army Corps of Eng'rs.*, 421 F.3d 618, 631 (8th Cir. 2005) ("[T]he FCA does not mandate a particular level of river flow or length of navigation season, but rather allows the Corps to decide how best to support the primary interest of navigation in balance with other interests. . . . Because the Corps is able to exercise its discretion in determining how best to fulfill the purposes of the reservoir system's enabling statute, the operation of the reservoir system is subject to the requirements of the ESA.").

In determining whether EPA's rule jeopardizes listed species or adversely modifies critical habitat, the Services must "evaluate the current status of the listed species" and "[e]valuate the effects of the action and cumulative effects on the listed species or critical habitat." 50 C.F.R. §§ 402.14(g)(2)-(3). This requires the Services to distinguish between the pre-action condition of all affected species and critical habitat and the direct, indirect, and cumulative effects of EPA's action:

> "'Effects of the action' include both direct and indirect effects of an action that will be added to the 'environmental baseline.' The environmental baseline includes 'the past and present impacts of all Federal, State or private actions and other human activities in the action area' and 'the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation.'"

Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv., 422 F.3d 782, 790 (9th Cir. 2005) (citing regulatory definitions found at 50 C.F.R. § 402.02).

The baseline does not include future fish kills or habitat impacts. The courts have held numerous times that where, as here, a federal agency exerts control over ongoing activities, practices or operations that affect listed species, the "effects of the action" include the full future consequences of continuing those activities, practices, or operations.

The prohibition against gaming the baseline is stated clearly and recently in *National Wildlife Federation v. National Marine Fisheries Service*, a case related to continued operation of the Federal Columbia River Power System (FCRPS), an immense series of dams and reservoirs on the Columbia River, most of which were built more than 50 years ago. *See* 524 F.3d 917 (9th Cir. 2008). Dams affect endangered aquatic species in many of the same ways that cooling water intakes do: they modify water temperature, block fish passage, and in the case of hydroelectric dams, can impinge and entrain fish in their intakes. With respect to the FCRPS, the Ninth Circuit affirmed the trial court's rejection of a BiOp because the BiOp's jeopardy evaluation compared the effects of the planned operations of the FCRPS to a hypothetical state of operations that "degraded" the baseline by folding in part of the power system's ongoing impact. *Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv.*, 524 F.3d 917, 929 (9th Cir. 2008). The court held that it was illegal for federal agencies to attempt to disregard certain ongoing impacts of FCRPS operations, rather than focusing "on whether the action effects, when added to the underlying baseline conditions, would tip the species into jeopardy." *Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv.*, 524 F.3d 917, 929 (9th Cir. 2008). The court explained that there was a critical difference between the basic existence of the dams and the discretionary federal decision about how to continue operating them:

> "The current existence of the FCRPS dams constitutes an 'existing human activity' which is already endangering the fishes' survival and recovery. See ALCOA, 175 F.3d at 1162 n.6 (citing 50 C.F.R. § 402.02). Although we acknowledge that the existence of the dams must be included in the environmental baseline, *the operation of the dams is within the federal agencies' discretion* under both the ESA and the Northwest Power Act, 16 U.S.C. § 839."

Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv., 524 F.3d 917, 930-931 (9th Cir. 2008) (emphasis added).

Similarly, in reviewing continued operation of the federal Klamath Irrigation Project, which had operated for more than ninety years "following essentially the same procedures for storing and releasing water," the Supreme Court stated that the proper focus of a Section 7 consultation was on whether "long-term operation of the Klamath Project was likely to jeopardize the continued existence of the Lost River and shortnose suckers." *Bennett v. Spear*, 520 U.S. 154, 159 (1997). The year after *Bennett v. Spear* was decided, the Services published a Section 7 consultation handbook that made clear that, with respect to all federal water projects, the effects of construction and past operation of locks, dams, reservoirs, water diversions, and similar modifications form part of the environmental baseline, but BiOps must distinguish between this baseline and the future direct and indirect impacts of continued operation of these water projects. *See* Consultation Handbook p.4-30. The same is true for water projects that are not built by the federal government. For example, where private dams are licensed by the Federal Energy Regulatory Commission and have existed for many years, continued operation of the dams by a municipality is still subject to ESA consultation and to protective measures designed to achieve a 75%-95% fish passage survival rate for endangered species that encounter the dam. *See Cowlitz Indian Tribe v. FERC*, 186 Fed. Appx. 806, 809 (9th Cir. 2006).

The Services have established court-approved techniques to distinguish the existential impact of physical assets like dams and power plants (the baseline impact) from the effects of their continued operation (the action). For example, in order to distinguish between the harms caused by the existence of dams and reservoirs built decades ago on the upper Missouri River, and the harms caused by their continued operation now, "[t]he FWS [Fish and Wildlife Service] used a 'run-of-the-river' baseline in which the dams and physical channel modifications are assumed to be in place, but all floodgates are assumed to be wide open, with no flow control." *Am. Rivers, Inc. v. United States Army Corps of Eng'rs.*, 421 F.3d 618, 632-633 (8th Cir. 2005). The Eighth Circuit upheld this approach as the correct way to distinguish between the past creation of such physical assets and their future operation. *See Am. Rivers, Inc. v. United States Army Corps of Eng'rs.*, 421 F.3d 618, 632-633 (8th Cir. 2005).[11] "

In *American Rivers*, the Eight Circuit explained that the Army Corps attempts to add "hypothetical continued operation" of dams to the baseline "is essentially a different twist on the argument that the Corps has no discretion in operating the reservoir system. . . . However . . . the FCA 'clearly gives a good deal of discretion to the Corps in the management of the River. . . .'" *Id.* By analogy with *American Rivers*, EPA's suggestion that the current level of impingement, entrainment, and thermal discharge should be considered as the "environmental baseline," and that the jeopardy analysis of its new regulations should ask only whether the new rules decrease or increase these effects, is tantamount to arguing that EPA has no ability to affect the existing level of cooling water intake operations through its choices in this rulemaking. That is plainly untrue. In enacting regulations to implement the broad mandate of Section 316(b) of the Clean

[11] For EPA's rule, the equivalent would be a baseline in which cooling water intakes and their associated diversion canals, walls, and other infrastructure exist in rivers and continue to adversely modify habitat (for example through shoreline hardening), but are not operated.

Water Act, EPA has options for "minimizing adverse environmental impact" through controls on the "location, design, construction, and capacity" of existing cooling water systems. 33 U.S.C. § 1326(b).

For example, in its 2011 proposed rule, EPA's preferred option would allow existing intakes to continue operating with only slight reductions in current levels of take and no effect whatsoever on thermal discharges. At the other extreme, EPA could determine that to minimize adverse environmental impact it is necessary to end all withdrawals of cooling water in the United States, reducing take to zero. In between these extremes lie options such as Options 2 and 3 in EPA's proposed rule, which would require all or most of the largest existing facilities to gradually retrofit to closed-cycle cooling systems, in the process reducing direct take from impingement and entrainment by more than 97% and effectively ending the discharge of thermal pollution and its impact on habitat. While some incidental take will continue to occur under these middle-of-the-road options, the take of listed species take likely would drop in parallel with overall mortality, i.e. a decrease of 97% or more from current conditions, and adverse habitat impacts would decline dramatically as well.

The BiOP in *American Rivers* also is another good example of the Services' ability to comply with their duties under Section 7 of the ESA even when facing a complex challenge involving the impacts of multiple structures spread across hundreds of river miles and multiple endangered species. Although the first BiOp was remanded by a district court for failure to consider all of the future effects of the system's operation, once the FWS completed a BiOp with the correct scope, the court upheld it against a variety of challenges. *See Am. Rivers, Inc. v. U.S. Army Corps of Eng'rs.*, 421 F.3d 618, 626-627 (8th Cir. 2005).

The principle that the "federal action" under review in a Section 7 consultation includes all future effects of a federal regulation that authorizes continuation of an activity or operation applies in all regulatory settings, not just when dealing with water infrastructure. See, e.g., *Dow AgroSciences LLC v. Nat'l Marine Fisheries Serv.*, 707 F.3d 462 (4th Cir. 2013) (BiOp covering EPA's re-registration of decades old, commonly used pesticides under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) must evaluate all continuing uses of those pesticides); *Ctr. for Marine Conservation v. Brown*, 917 F. Supp. 1128, 1137 (S.D. Tex. 1996) (BiOp regarding Gulf Coast shrimp fisheries asks whether "the continued long-term operation of the shrimp fishery in the southeastern United States [is] likely to jeopardize the continued existence of the Kemp's ridley sea turtle. . . ."); *Greenpeace v. Nat'l Marine Fisheries Serv.*, 80 F. Supp. 2d 1137, 1143-1144 (W.D. Wash. 2000) (quoting *Conner v. Burford*, 848 F.2d 1441, 1458 (9th Cir. 1988)) (BiOp reviewing the fishery management plans (FMPs) that govern the annual groundfish catches in Alaskan waters must "be equal in scope to the FMPs" because "biological opinions under the ESA must be 'coextensive' with the agency action.").

When the government regulates private activities on federal lands through plans or policies, the federal action reviewed in a Biological Opinion includes all subsequent regulated activities, and not just any incremental changes from the last plan or policy. The elements of a plan that protect listed species, such as road closures or other use restrictions, are balanced

against aspects of the plan that might injure species, such as continued (or expanded) road use, logging, or off-road recreational use authorizations. All are considered "relevant factors" in reaching a final determination as to whether continued use of the federal lands under the plan jeopardizes the continued existence of species in the plan area. *See, e.g., Ctr. for Biological Diversity v. Bur. of Land Mgmt.*, 422 F. Supp. 2d 1115, 1138, 2006 U.S. Dist. LEXIS 14675 (N.D. Cal. 2006) (rejecting as arbitrary and capricious a biological opinion that involved both recreational use of critical habitat as well as offsetting protection measures); *cf. Ctr. for Biological Diversity v. Bur. of Land Mgmt.*, 2011 U.S. Dist. LEXIS 114039 (D. Az., Sept. 30, 2011) (upholding a BiOp that reviewed BLM land use regulations for Arizona that included both activities likely to cause take of endangered tortoises and also offsetting conservation measures, stating that, "despite impacts [on endangered tortoises] from OHV use and grazing . . . FWS adequately assessed the current status of the desert tortoise population and its critical habitat, analyzed the possible future effects resulting from the RMPs, considered all relevant factors and the best available scientific data, and provided a reasoned and rational explanation supporting its 'no jeopardy'" and 'no adverse modification' determinations."); *See also Forest Serv. Empls. For Envt'l Ethics v. U.S. Forest Serv.*, 726 F. Supp. 2d 1195, 1200 (D. Mont. 2010)(Forest Service's ongoing practice of annually "dumping millions of gallons of chemical fire retardant on national forests" required consultation with Services that considered the full ongoing impacts of all fire retardant use).

Many agencies facing a Section 7 consultation on rules or plans that govern ongoing operations or activities have tried to game the baseline in a similar way and failed. There is no such thing as "baseline I&E" or "baseline thermal discharge." The Services must include all the relevant factors in a jeopardy and adverse modification determination – above all, the adverse consequences of allowing hundreds of cooling water intakes to continue killing millions of listed organisms. The Services must determine whether, taken as a whole, and in light of baseline and cumulative effects, EPA's regulation will avoid jeopardizing the continued existence of all of the 215 affected species and will protect their habitat, whether designated as critical or not.[12]

Finally, even if EPA's approach of evaluating only the increase or decrease in "baseline I&E" were legal, the fact is that EPA's proposed rule is actually likely to increase harm to endangered species. As compared to the current trends, which began a decade ago, in which a rising number of plants are retrofitting to closed-cycle systems, EPA's proposal is likely to both

[12] All impacts to habitat must be considered as part of the jeopardy analysis, because habitat impacts in turn affect species and thus may contribute to jeopardy. *See Miccosukee Tribe of Indians of Florida v. FWS*, 566 F.3d 1257, 1262-63 (11th Cir. 2009) (describing biological opinion which found that continued flooding of non-designated Cape Sable seaside sparrow habitat would lead to species extinction); 50 C.F.R. § 222.102 ("Harm in the definition of 'take' in the Act means an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including, breeding, spawning, rearing, migrating, feeding or sheltering."); *cf.* 16 U.S.C. § 1533(a)(1)(A) (listing "destruction, modification, or curtailment of [] habitat" as one rationale for listing species as endangered or threatened).

reduce the number of existing intakes that are ultimately retrofitted to closed-cycle cooling systems and to increase the total flow of cooling water through those existing intakes. Thus, EPA's proposal likely will *increase* the number of listed organisms killed directly in cooling water intakes and also increase the volume of thermal discharge pollution released that adversely modifies the habitat of listed species.

To understand why EPA's proposed rule likely will have such effects, it is necessary to first understand the regulatory status quo. In the absence of a federal rule, a few states have adopted policies phasing out all use of once-through cooling, but most states make case-by-case decisions to regulate cooling water intakes pursuant to the "best professional judgment" provisions of EPA's NPDES regulations. *See* 40 C.F.R. § 125.3. "Best professional judgment" determinations under the Clean Water Act consider a limited number of factors. In practice, "EPA's record shows numerous instances of existing facility retrofits to closed-cycle" [13] under this long-standing approach.

But in the proposed rule, EPA's preferred option abandons the limited factors of the best professional judgment standard in favor of an open-ended set of factors that the state's permitting director deems to be "relevant." 76 Fed. Reg. 22,174, 22,204 (col. 2). Permitting agencies are then simply told to choose the technology the agency deems "warranted." 76 Fed. Reg. at 22,283 (col. 2). And EPA now explicitly invites permitting directors to determine that "no additional control requirements are necessary beyond what a facility is already doing." 76 Fed. Reg. 22,262 (col. 2). To the extent that EPA's proposed rule encourages States to consider a broader range of factors than they currently use in settings standards for cooling water intakes, and encourages permittees to provide more complex justifications for lax regulatory standards, EPA's rule is likely to slow an already glacial regulatory process even further and to lead some plants that may have been forced to retrofit under the old process to avoid retrofits.

EPA also plans to worsen the status quo by unlawfully extending the schedule for making BTA determinations. Although the Clean Water Act clearly requires that BTA determinations be made and revisited every five years, Under EPA's proposed rule permitting directors will be given up to eight years from the effective date of the new rule to make BTA decisions with respect to impingement, and an indefinite schedule for controlling entrainment. [14]

EPA's new rule also replaces a commonly used and fairly stringent regulatory standard for comparing different cooling system options, called the "wholly disproportionate" standard, with an open-ended formula. Since the 1970's, EPA and many state permitting authorities have used the "wholly disproportionate" test to interpret Section 316(b) (EPA writes permits directly

[13] 76 Fed. Reg. at 22,204 (col. 1).

[14] *See* 76 Fed. Reg. 22,248 (col. 1) ("As proposed, facilities would have to comply with the impingement mortality requirements as soon as possible . . . (not to exceed eight years as described below) . . . With respect to entrainment requirements, under the proposal, existing facilities must comply as soon as possible . . . .").

for facilities in a few states). Under the "wholly disproportionat e" test, a BTA analysis begins with consideration of the best performing and available technology to reduce entrainment or impingement – which is almost always cooling towers. Only if the Director rejects the best performing technology because its costs were "wholly disproportionate" to the benefits it provided could the Director consider the next most effective technology. In the absence of a final 316(b) Phase II rule governing existing facilities, many states and EPA Regional Offices have used some variation of this approach. This approach has contributed to the above-noted retrofits of many cooling water intakes in recent years. But EPA now plans to do away with the "wholly disproportionate" standard and substitute instead a far weaker cost benefit analysis, under which a Director may reject any technology if the costs "are not justified" by the benefits.[15]

Further, EPA's rule worsens the status quo by introducing a new provision that grandfathers the use of existing once-through cooling systems at many new generating units built at existing power plants, including repowered[16] or replaced generating units at these facilities. Such repowerings and replacements of existing power plants are occurring frequently in the current economic circumstances because many older plants have reached the end of their useful life at a point where fuel switching from coal to natural gas makes compelling economic sense. As just one example, the 50 year old B.L. England power plant near Cape May, New Jersey is scheduled to repower over the next five years. It will close down two generating units cooled by an antiquated once-through cooling system. These fifty year old turbines have run as peaking units only for the past ten years. These units will be replaced with a single combined-cycle turbine that is more powerful than either of the two old units, and will run at a much higher capacity factor. But the New Jersey Department of Environmental Protection has already decided that this powerful new turbine can use the 50 year old once-through cooling system rather than a closed-cycle cooling system, despite the fact that there is already a functional closed-cycle cooling system on site that supports a third turbine. The New Jersey Department of Environmental Protection referenced the pending federal rule in concluding that the new turbine, which will kill at least a billion organisms a year by using the existing closed-cycle cooling system, should be exempted from federal regulations for new units that otherwise would have required the use of a cooling tower.[17]

Thus, there are two primary effects of EPA's departure from the "best professional judgment" decision making process, abandonment of the "wholly disproportionate standard," and grandfathering of repowered or replaced facilities. First, many existing intakes that would otherwise have been retrofitted to closed cycle cooling in the coming years now will not be.

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[15] Proposed 40 C.F.R. § 125.98(e), 76 Fed. Reg. at 22,288 (col. 1).

[16] Repowering is the practice of rebuilding and replacing the major components of an existing power plant.

[17] New Jersey Department of Environmental Protection, Division of Water Quality, Bureau of Surface Water Permitting, BL England Generating Station, NJPDES Permit Number: NJ0005444, Response to Comments, at 16 of 40.

Second, many of the high capacity factor new generating units that are being built to replace low capacity factor older units will be grandfathered under EPA's new rule, greatly increasing the "actual intake flow" of existing cooling water intakes. As such, the net effect of EPA's new rule over the coming years is likely to be an increase in the number of listed animals killed by cooling water intakes, and an increase in the area of habitat that is adversely modified by thermal discharge, when compared to the situation that would exist if current trends were extended into the future.

The proposed rule is likely to increase harm in other ways as well, for example, by weakening the definition of "species of concern" under the Clean Water Act in a way that would actually exclude many rare, endemic or uniquely valuable species from future environmental analyses. For a more detailed critique of the ways in which EPA's proposal actually worsens the status quo, see the attached comments on EPA's 2011 proposal.[18]

b. Now is the only opportunity to prepare a comprehensive and meaningful Biological Opinion.

EPA's other tactic is to imply that the Services should issue superficial BiOps that will somehow be supplemented later. This is illegal and unrealistic. As discussed above, EPA is promulgating an enormously important regulation that will affect hundreds of listed species and their habitats. For most existing intakes, no federal agency will be involved in the reissuance of their NPDES permit because these permits are issued by state agencies. The EPA rule is the only federal action affecting these intakes. Now is the only opportunity for the Services to complete a comprehensive biological opinion.[19]

EPA's statements about how future studies of impingement and entrainment will factor into future NPDES permit reviews are confusing, if not outright misleading. Most NPDES permits are issued by States, not EPA. The requirements to perform future studies under EPA's proposed rule will be enforced by States, not EPA. And the studies themselves are to be performed and supervised not directly by (under-resourced) state agencies, but rather by the permittees, with "peer review" by experts that are paid by and report to permittees.[20] Thus, it is

[18] Comment Letter from Riverkeeper, Inc., Natural Resources Defense Council, Sierra Club, Waterkeeper Alliance, Earthjustice, Environmental Law And Policy Center, Clean Air Task Force, Network For New Energy Choices, California Coastkeeper Alliance, Soundkeeper, Inc., Delaware Riverkeeper Network, Save The Bay – Rhode Island, Friends Of Casco Bay, NY/NJ Baykeeper, Hackensack Riverkeeper, Santa Monica Baykeeper, San Diego Baykeeper, Scenic Hudson, American Littoral Society, And Conservation Law Foundation, re National Pollutant Discharge Elimination System – Cooling Water Intake Structures at Existing Facilities and Phase I Facilities, 76 Fed. Reg. 22,174 (April 20, 2011), Docket ID No. EPA-HQ-OW-2008-0667, dated August 18, 2011 (hereinafter "August 2011 Comment Letter").

[19] In addition, a properly done BiOp or ITS under ESA section 7 should be incorporated into the 316(b) rule itself as the federal action permitting state regulators to issue permits for cooling water intake systems in their NPDES permits.

[20] *See* August 2011 Comment Letter, at 42-44, 71-72, 82, 160.

unclear under what legal authority EPA believes it can ensure that these studies are conducted at all, much less in an adequate manner, or how EPA will have a meaningful opportunity to make use of the study results.

Nor is it obvious how EPA intends to use the "five-year cycle" for issuing NPDES permits to periodically review ESA compliance at cooling water systems. *See* BE at 4. First, most periodic NPDES reviews and permit reissuances are conducted by the States, not EPA, pursuant to agreements that delegate administration of the NPDES program to state authorities. Generally speaking, EPA is not directly involved in writing or periodically reviewing NPDES permits for cooling water intakes.

Second, many of the states that administer the NPDES program have not examined the effects of existing cooling water intakes in decades and have ignored existing federal law that requires them to review the impacts of cooling water intakes in every NPDES permit cycle.[21] These states either do not review the effects of a cooling water intake at all, or they conduct a perfunctory review summarized as "no significant change" in a single sentence placed in a draft NPDES permit fact sheet.[22] EPA has rarely, if ever, challenged these practices.

Third, the NPDES permit backlog for the large power plants that are the main users of cooling water is so great that the five-year permit cycle often takes ten years or more to complete. At coal fired power plants alone, more than 87 million MWh of generation operates without an up-to-date permit as of 2011, and nationwide, 255 existing power plants were operating on expired permits. Many of these permits (at least 65) were expired for more than an entire five-year permit cycle,[23] with a number operating on permits that expired in 1995 or earlier. As noted above, EPA's proposed rule would only worsen this problem by creating an extended timeline of up to eight years from the effective date of the new rule before BTA

[21] For example, Section 402(a)(1)(A) of the Clean Water Act authorizes issuance of NPDES permits for point source discharges "on condition that such discharge will meet ... all applicable requirements under sections [301 and 306]," one of which is section 316(b)'s requirement that cooling water intake structures reflect BTA. Thus, every time a permit writer issues or re-issues a NPDES permit, he or she must ensure that the facility still complies with Section 316(b). Both EPA's suspended Phase II regulations, and EPA's proposed rule, also require explicitly that BTA determinations be revisited with each five year permit cycle. This requirement is found at 40 C.F.R. § 125.98 in both the suspended and proposed versions of the rules.

[22] *See* GRACE Communications Foundation, Sierra Club, Riverkeeper, Waterkeeper Alliance, River Network, "Treading Water; How States Can Minimize the Impact of Power Plants on Aquatic Life," *Available at* http://www.gracelinks.org/3124/power-plants-kill-fish-treading- water-report.

[23] Commenters have attached a list, compiled in 2011, of coal plants with cooling water intakes operating on expired permits; 18 of these were more than 10 years overdue.

decisions are made for impingement, and EPA is setting an indefinite deadline for BTA decisions regarding entrainment.[24]

Once EPA promulgates the Phase II 316(b) regulations, it will in all likelihood wash its hands of the vast majority of all future impacts to listed species and their habitats, except in the very few instances where it retains NPDES permitting authority for regulated facilities.[25] Such an approach to ESA compliance is not reasonably certain to avoid harm and therefore is not lawful. The Services must complete a full BiOp now, while it is still possible for EPA to issue a final rule that meets its ESA obligations to avoid jeopardy to listed species, avoids adverse modification of critical habitat, and implements all reasonable and prudent alternatives to jeopardy and/or reasonable and prudent measures to minimize incidental take.

6. EPA has not presented the Best Available Data to the Services.

EPA has clearly failed in its obligation to provide the Services with the best available commercial and scientific data on the effects of its proposed rule and the status of the listed species affected by it. To properly support a formal consultation, EPA should have ensured that its Biological Evaluation contained "the best scientific and commercial data available or which can be obtained during the consultation for an adequate review of the effects that an action may have upon listed species or critical habitat." 50 C.F.R. § 402.14(d). Instead, EPA's submission is an exercise in box-checking: it provides limited information in the categories typical for such a document (*see* 50 C.F.R. § 402.12) and falls far short of providing the best available data for the Services' consideration, despite having access to this best available commercial and scientific data.[26]

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[24] *See* 76 Fed. Reg. 22248 ("As proposed, facilities would have to comply with the impingement mortality requirements as soon as possible . . . (not to exceed eight years as described below) . . . With respect to entrainment requirements, under the proposal, existing facilities must comply as soon as possible . . . .").

[25] For most NPDES permits, the only other conceivable nexus for federal action is EPA's ability, under Section 402(d) of the Clean Water Act, to object to state-issued NPDES permits. But surely EPA does not seriously propose to seek 1200+ individual consultations with the Services. And even if EPA planned to combine the pending BiOps with thousands of future, site-specific BiOps, this would not avoid the need for the Services to reach a conclusion about jeopardy now and issue an incidental take statement. *See Forest Serv. Emples. for Envtl. Ethics v. U.S. Forest Serv.*, 726 F. Supp. 2d 1195, 1229 (D. Mont. 2010) ("programmatic" biological opinions are not excused from the incidental take requirement). If this site-specific BiOp approach is indeed the direction that EPA is suggesting to the Services, it is illegal because it is not reasonably certain to avoid jeopardy to listed species and adverse modification of critical habitat. The Services and EPA "may not rely on plans for future actions to reduce threats and protect a species." *Or. Natural Resources Council v. Daley*, 6 F. Supp. 2d 1139, 1154 (D. Or. 1998).

[26] EPA did not even collect and evaluate all Incidental Take Statements, Incidental Take Permits, and state, federal and/or permittee monitoring reports or studies on endangered and threatened species and their habitat (whether designated "critical" or not) related to currently permitted facilities. With these comments we are providing additional data and information to be considered by the agencies, which also indicate the incompleteness of EPA's data gathering.

For the most part, the Biological Evaluation is written at a level of generality consistent with high school textbooks. EPA spends five pages defining, in single paragraphs, ecosystems such as the "intertidal zone," the "pelagic zone," and "rivers and streams." See BE at 15-19. But EPA never identifies the actual rivers, intertidal zones, and other ecosystems affected by cooling water intakes and discharges, or quantifies the extent of those impacts. EPA simply contends that it is impossible to do so. But as explained below, it is quite possible to identify the reaches affected by once-through cooling water systems and use available models to quantify the impacts that cooling systems have upon them, such as the temperature increase caused by thermal discharges.

EPA then spends another 35 pages listing the 215 endangered species that it believes are affected by the continued operation of existing cooling water systems and describes most of the genera (not species) affected by the rule in broad terms, with a sentence or two on their life history. *See* BE at 19-54. EPA never once discusses the status of any of these listed species: population trends, number of breeding individuals, distribution, etc.

Further, EPA never presents the kind of information necessary to determine whether the survival or recovery of even a single listed species is jeopardized by the continuing operation of once-through cooling water systems. The BE provides no information on the existence of important sub-populations of listed species, except for those officially listed as Distinct Population Segments, and no information on the impacts that the rule might have on such important sub-populations. It contains no meaningful data on habitat modification generally, nor on designated critical habitats in particular.

The BE also fails to include well-documented and easily accessible information about other ongoing projects that affect listed species, such as dredging operations in the Delaware River, the operation of the Klamath and Columbia River power systems, or the impacts that Gulf, Pacific, and Atlantic coast fisheries have on sea turtles, sturgeons, and numerous other listed species caught as bycatch. Thus, in addition to not providing sufficient data about the status of the species affected or the effects of impingement, entrainment, and thermal discharges on those species, EPA has also provided woefully insufficient information on the environmental baseline or relevant cumulative effects. Overall, the data provided by EPA to the Services is insufficient to specify levels of incidental take that might occur for any of the species affected by this rule, even in broad or order of magnitude terms.

Instead, EPA repeatedly claims that it lacks adequate information about the affected species. As these comments show with respect to just a few species and locations, EPA clearly made little or no effort to find that information, despite the fact that these models and data are readily available. The agency has no excuse as to why it overlooked and failed to provide the Services with this information.

For example, EPA states that, after searching through impingement and entrainment studies from 98 facilities, the agency could not find any examples in the last 20 years of

impingement and entrainment of listed species; the examples they did find were limited to eight species. *See* BE at 62-67. But the 98 facilities EPA looked at make up less than 10% of the universe of existing facilities regulated under Section 316(b). With only a small fraction of EPA's resources and innate knowledge of the subject, Commenters were able to quickly identify several recent examples of cooling water systems harming endangered species, including impacts on species not discussed by EPA. These are discussed below:[27]

a. Columbia Generating Station – Intakes and Thermal Discharge Harm Salmonids[28]

On May 7, 2012, NOAA wrote to EPA, requesting consultation on EPA's possible approval of a state-issued NPDES permit for the Columbia Generating Station in Washington. Two ESA-listed species of steelhead and salmon live in the Hanford Reach of the Columbia River near the plant, and the area is designated critical habitat for the species. NOAA explained that adult Upper Columbia River steelhead are known to spawn near the intake and discharge structures and juveniles inhabit this area. Although the Columbia Generating Station uses a closed-cycle cooling system that withdraws 98% less water than comparable once-through systems, NOAA concluded that even this limited intake was likely to adversely affect listed

[27] In addition to the resources discussed below, Commenters provide two more general exhibits. The first is a Sierra Club report entitled *Giant Fish Blenders: How Power Plants Kill Fish & Damage Our Waterways*, which includes citations to data and studies on impacts to threatened and endangered species. This includes evidence of direct harm to listed species including: Gulf sturgeon; Alabama shad; saltmarch topminnow; mangrove rivulus; green, Kemp's Ridley, loggerhead and leatherback sea turtles in the Gulf of Mexico; shortnose sturgeon in the Hudson River; three species of endangered turtles in New York harbor; and a number of listed species in California coastal waters, for example the impingement and entrainment at the Pittsburg and Contra Costa plants in the San Francisco Bay Delta of more than 300,000 listed fish per year, including Sacremento splittail, chinook salmon, steelhead trout, Delta smelt and Longfin smelt. The study also notes the indirect harms to species that are dependent on healthy populations of fish that are subject to impingement and entrainment. The report describes how power plant intake structures harm these species and also names 17 power plants with one-through cooling systems. Second, Commenters provide a table of representative *Coal-Fired Power Plants using Once-Through Cooling with Endangered Species Impacts*, with plant name, state, water body, daily intake capacity, and the identities of listed species living in the water body that are likely threatened with impingement or entrainment, and in a few cases, records of harm to listed species from these power plants.

[28] Attached to this comment letter are the following three documents: (1) Letter from the United States Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, to U.S. Environmental Protection Agency, Region 10, re: Columbia Generating Station – NPDES permit renewal by State of Washington, dated May 7, 2012; (2) Letter from the United States Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, to U.S. Nuclear Regulatory Commission, re: Columbia Generating Station, Consultation No. I/NWR/2011/05286, dated June 11, 2012; and (3) Memorandum from Briana Balsam, Biologist, Office of Nuclear Reactor Regulation to Jeremy J. Susco, Acting Chief, Office of Nuclear Reactor Regulation, re: Conclusion of Informal Section 7 Consultation with U.S. Fish and Wildlife Service of Columbia Generating Station and Section 7 Consultation Report, dated June 13, 2012.

species by killing fry; therefore, it requested formal consultation. Since once-through cooling systems kill approximately 50 times as many fish, it follows that NOAA's concerns would be fifty times more significant at a comparable plant with a once-through cooling system. Although EPA's consultants reviewed the Columbia Generating Station's NPDES permit in preparing the BE, they did not look beyond it to any other cooling water intakes on the Columbia River.

b. Impingement and Entrainment of Atlantic Sturgeon in the Delaware River

On the East Coast, power plants have documented the repeated killing of both shortnose and Atlantic sturgeon in the last ten years. The continued existence of the recently-listed Atlantic sturgeon, in particular the Delaware River Atlantic sturgeon, a genetically unique component of the New York Bight Distinct Population Segment (DPS), is potentially jeopardized by continuing operation of once-through cooling systems on the Delaware.

With respect to Atlantic sturgeon, we respectfully direct the Services' attention to the comment letters sent to NOAA Fisheries by the Delaware Riverkeeper Network, dated April 6, 2012[29] and June 12, 2012[30], highlighting the need for immediate designation of critical habitat in the Delaware River and commenting on the Section 7 consultation on the U.S. Army Corps of Engineers' planned dredging of the Delaware River main channel (the "Deepening Project"). We also respectfully direct the Services' attention to the July 19, 2013 comments of the Natural Resources Defense Council regarding NMFS' recent draft "batched" BiOp for a number of Atlantic fisheries.[31] NRDC's comments, and the attached expert reports, identified significant concerns about the validity of NMFS' most recent estimates of Atlantic sturgeon abundance throughout their range. Because the studies cited in and attached to NRDC's and the Delaware Riverkeeper Network's comments are already in NOAA's possession, we do not append them now. The Services' obligation to use the best available commercial and scientific data necessarily includes studies and comments submitted to the Services during previous consultations.

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[29] *See* attached letter from DRN to NOAA re Endangered Species Act Section 7 Consultation Biological Opinion -- re Critical Habitat Designation, ESA Section 7 Consultation on the Deepening Project, and Monitoring on the Atlantic Sturgeon in the Delaware River, dated April 6, 2012, at 1-2 (hereinafter "DRN April 2012 Letter").

[30] *See* attached Letter from DRN to NOAA re ESA Section 7 Consultation on the Deepening Project's Effects on Atlantic Sturgeon and Shortnose Sturgeon in the Delaware River, dated June 12, 2012.

[31] *See* Comment Letter from NRDC to NOAA re Endangered Species Act Section 7 Consultation Biological Opinion -- Endangered Species Act Section 7 Consultation on the Continued Implementation of Management Measures for the Northeast Multispecies, Monkfish, Spiny Dogfish, Atlantic Bluefish, Northeast Skate Complex, Mackerel/Squid/Butterfish, and Summer Flounder/Scup/Black Sea Bass Fisheries [Consultation No. F/NER/2012/01956], dated July 19, 2013.

We also direct the Services to the recent NMFS BiOp for the killing of shortnose and Atlantic sturgeon at the Indian Point nuclear generating station on the Hudson River.[32] In that opinion, NMFS found that even with protective measures and improved monitoring efforts, the Indian Point station on the Hudson is expected and permitted to take 564 shortnose sturgeon and 416 Atlantic sturgeon over the next twenty years. The opinion also is notable for purposes of this consultation because it demonstrates consideration of both climate change and thermal discharge impacts at a level that EPA could have performed, even if only on a case study basis, but did not perform.

As Delaware Riverkeeper Network noted in its 2012 letters, the status of the Delaware River Atlantic sturgeon is "extremely precarious" for a number of reasons, beginning with the fact that while "there were once 180,000 spawning female Atlantic sturgeon in the Delaware River[,] NMFS' latest population estimate based on fisheries bycatch data is that there is a mean of 87 spawning adult Atlantic sturgeon annually in the Delaware River." DRN April 2012 Letter at 1-2. Of these few remaining adults:

> [T]he best available scientific and commercial data recently released by NMFS demonstrat[e] a 38% intercept rate for Atlantic sturgeon in Northeast fisheries with an average mortality rate of 20% in sink gillnets (27% in monkfish fisheries) and 5% in otter trawls.

DRN April 2012 Letter at 5.

This dire context makes it all the more significant that "the open water intake cooling systems at Hope Creek Generating Station and the Salem Nuclear Generating Stations on the Delaware River . . . are likely to result in the impingement and entrainment of various life stages of Atlantic sturgeon. PSEG Nuclear, LLC found a dead Atlantic sturgeon on the Salem facility's intake structure trash bars on March 18, 2011." DRN April 2012 Letter at 6. Again in March and July of 2013, PSEG filed reports with the Nuclear Regulatory Commission indicating that the Salem power plant impinged at least one juvenile shortnose sturgeon and one juvenile Atlantic sturgeon.[33] Sturgeon may also be impinged and entrained at the Delaware City Refinery's cooling water intake, on the Delaware side of the estuary.

The Mercer power plant has also killed both species of sturgeon through impingement and entrainment. According to the Delaware River Basin Priority Conservation Areas and

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[32] *See* NMFS, NOAA, *Dept. of Commerce, Biological Opinion for Continued Operations of Indian Point Nuclear Generating Unit Nos. 2 and 3* (Jan. 30, 2013).

[33] *See* attached Letter from PSEG Nuclear LLC to U.S. Nuclear Regulatory Commission, re: Report of Impingement of Atlantic Sturgeon; Salem Generating Station Unit No. 1; Docket No. 50-272, dated March 29, 2013 and Letter from PSEG Nuclear LLC to U.S. Nuclear Regulatory Commission, re: Report of Impingement of Shortnose Sturgeon; Salem Generating Station Unit No. 1; Docket No. 50-272, dated August 1, 2013.

Recommended Conservation Strategies Final Report, prepared by The Nature Conservancy, the Partnership for the Delaware Estuary and the Natural Lands Trust, the area of the Delaware River in which Mercer's intakes are located is likely spawning habitat for Atlantic sturgeon and juvenile overwintering habitat for shortnose sturgeon.[34] In fact, according to a report submitted by PSEG (owner of the Mercer plant) to the New Jersey Department of Environmental Protection, the intake system at Mercer has killed shortnose sturgeon in the past (without an incidental take permit) and is estimated to kill eight juvenile Atlantic sturgeon annually (also unpermitted take). By comparison, in its July 2012 final BiOp for the Army Corps' Deepening Project, NMFS authorized the incidental take of only 9 Atlantic sturgeon over the 15 year period of dredging and annual maintenance.[35] Mercer impinges nearly this many Atlantic sturgeon in a year.

Notably, not one of the published peer-reviewed studies provided to NOAA and listed in the DRN April 2012 Letter bibliography provided by Delaware Riverkeeper Network was cited by EPA in its Biological Evaluation. The peer-reviewed literature is, obviously, available data.

Nor did EPA provide any of the reports referenced in the attached letters from Delaware Riverkeeper Network that were developed by the New Jersey Department of Environmental Protection or the Delaware Department of Natural Resources and Environmental Conservation. In fact, from the face of the Biological Evaluation, it appears that EPA did not make any kind of systematic effort to reach out to colleagues in state government about the impacts of cooling water intakes on threatened and endangered species and their habitats. Yet state agencies directly regulate the overwhelming majority of the cooling water intakes affected by EPA's pending rule and protect habitat in the vicinity of the intakes, and thus are more likely than EPA to possess information about harm to listed species. Thus, it appears that EPA is not taking seriously its duty to provide the Services with the best available data. The commenters urge the Services to contact state environmental and wildlife protection agencies directly.[36]

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[34] *See* The Nature Conservancy, the Partnership for the Delaware Estuary and the Natural Lands Trust, "Delaware River Basin Priority Conservation Areas and Recommended Conservation Strategies Final Report," Appendix II: Diadromous Fish Habitat Maps, November 2011.

[35] *See* attached National Marine Fisheries Service Endangered Species Act Biological Opinion, by Army Corpos of Engineers (ACOE), Philadelphia District, dated July 11, 2012, Considering Deepening of the Delaware River Federal Navigation Channel (Reinitiation).

[36] A few examples of records of power plant take that are available to EPA (and the Services) and that EPA (or if it fails to do so, the Services) must gather and consider before a BiOp can issue are: 1) records accumulated pursuant to incidental take permits issued by NOAA to seven California power plants in 2008 (*see* NOAA, "Taking and Importing of Endangered Species; Taking of Sea Turtles Incidental to Power Plant Operations," 73 Fed. Reg. 19826 (April 11, 2008); 2) records from the Crystal River Energy Complex, a plant for which NMFS consulted in 1999 and issued a BiOp and instructions on record keeping to monitor take of sea turtles; and 3) records from at least the following NPDES permits for coal fired power plants with once-through cooling systems that include impingement and entrainment monitoring requirements for listed species to be performed by the permittee and/or states: Morgantown GenOn in Maryland; Big Cajun II in Louisiana (pallid sturgeon); Nine Mile Entergy plant in Louisiana

At the current level of fishery bycatch, vessel strikes, and continued operation of cooling water intakes, the loss of the genetically unique Delaware River component of the New York Bight DPS of Atlantic sturgeon is very possible. And this is before the cumulative impacts of climate change and new dredging in the Delaware are taken into account. With fewer than 100 breeding adults in the river every year, every single fish counts. The loss of the Delaware River population would jeopardize the entire DPS.[37] The best available data show that the loss of juvenile sturgeon at cooling water intakes in the Delaware River, notably the intakes of the Mercer and Salem generating stations, is a serious blow to an irreplaceable population of endangered Atlantic sturgeon.

c. Taking of Endangered Sea Turtles in Florida: the St. Lucie Nuclear Plant Case Study

As a power plant that kills five separate species of endangered sea turtles, the St. Lucie nuclear plant provides a powerful example of the harm that cooling water intakes cause to listed species. But it is also an object lesson in the failures of case-by-case regulatory efforts to protect listed species, whether under Section 316(b) of the Clean Water Act or Section 10 of the Endangered Species Act.[38]

Florida Power and Light's (FPL) St. Lucie nuclear power plant began operation of Unit 1 in 1976 and Unit 2 in 1983. The plant is on Hutchinson Island, about eight miles southeast of Ft. Pierce, Florida. For twenty years, no biological opinion governed the operation of this cooling system and its effects on sea turtles.[39] It appears that the Nuclear Regulatory Commission ("NRC") only initiated formal consultation after it determined that an increasing number of sea turtles were being captured and killed at the St. Lucie plant and there was no allowance for such take.[40]

(pallid sturgeon); New Madrid, Missouri; Bridgeport Energy Facility, Connecticut (sturgeon), and the Monroe plant in Michigan.

[37] *See* NOAA, *Endangered and Threatened Wildlife and Plants; Threatened and Endangered Status for Distinct Population Segments of Atlantic Sturgeon in the Northeast Region*, Final Rule, 77 Fed. Reg. 5880, 5883 (Feb. 6, 2012).

[38] The documents referred to in this discussion of the St. Lucie plant are attached to this comment letter.

[39] Cover letter from United States Nuclear Regulatory Commission to Florida Power and Light Company, re: Biological Opinion, St. Lucie Plant, Units 1 and 2 (TAC NOS. MA6374 and MA6375), dated May 18, 2001, attaching National Marine Fisheries Service, National Oceanic and Atmospheric Administration, United States Department of Commerce, "Biological Opinion" re: the St. Lucie Nuclear Power Plant, at 1-2 ("NMFS Biological Opinion on St. Lucie Plant").

[40] *Id.* at 2.

NMFS issued a BiOp in 1997, but NRC and NMFS reinitiated formal consultation shortly thereafter, in 1999,[41] and again in 2006,[42] in both cases because incidental take limits were exceeded, and in 2005 when an endangered small-tooth sawfish was found in the intake canal.[43] In fact, consultation has been ongoing between NMFS and the NRC since 2007 and a new BiOp is expected soon.[44]

For all this consultation, NMFS' involvement has not effectively reduced the risks to endangered sea turtles from the St. Lucie cooling water intakes. A total of 6,576 turtles of all five listed species were removed from the St. Lucie intake canal during the 23-year period from 1976-1999.[45] Yet in the subsequent 12 years, from 2001-2013, a total of 8,198 turtles were captured, including 67 injuries/mortalities.[46] After the deaths of hundreds of sea turtles at the FPL plant, including fifteen years of take since NMFS first got involved, FPL now purports to be "developing a plan to install turtle excluder grating at the offshore intake structures."[47]

There are also serious questions about the adequacy of monitoring and reporting of take at St. Lucie and at other power plants. The ESA requires that incidental take statements establish clear triggers for subsequent consultation if there is a risk of jeopardizing the species. *See Miccosukee Tribe of Indians v. United States*, 566 F.3d 1257, 1271-72 (11th Cir. 2009) (citing 50 C.F.R. § 402.14(i)(4)). Further, action agencies must report on "the progress of the action and its impact on the species to the Service."[48] But at St. Lucie, while it appears that mortality reports are sent to the NRC (and presumably are forwarded to NMFS), it is unclear whether reports on the monthly non-lethal entrainment and impingement of sea turtles are also forwarded to the NRC and NMFS. And a 2009 Government Accountability Office report concluded that the extent to which the Services require ongoing monitoring in BiOps varies from action to action, that the consistency with which the Services track monitoring reports varies from field office to field office, and that the Services lack complete monitoring information for many of their formal consultations.[49] Clearly, this system exhibits potential for communication breakdown between the applicant, the State, any federal action agency, and the Services.

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[41] *Id.* at 2-3.

[42] NRC, "Biological Assessment, St. Lucie Nuclear Power Plant Units 1 and 2, Reinitiation of Section 7 Consultation to Include Sea Turtles" (August 2007).

[43] *See* Letter from Frank Gillespie, NRC, to David Bernhart, NOAA, (Feb. 24, 2006).

[44] FPL St. Lucie Plant Annual Environmental Operating Report, at 18 (2012).

[45] NMFS Biological Opinion on St. Lucie Plant, Units 1 and 2, at 6.

[46] FPL Marine Turtle Removal Monthly Summary (August 2013)

[47] FPL St. Lucie Plant Annual Environmental Operating Report, at 18 (2012).

[48] 50 C.F.R. § 402.14(i)(3).

[49] U.S. Gov't Accountability Office, *Endangered Species Act: The U.S. Fish & Wildlife Service Has Incomplete Information About Effects on Listed Species From Section 7 Consultations,* GAO-09-550 (2009).

The poor implementation, inadequate monitoring, lengthy delays, and above all, the decades long failure to actually reduce harm to turtles at the St. Lucie plant, all indicate that the Services cannot be reasonably certain that the listed species protection efforts at this one plant are effective. And St. Lucie is in that minority of plants that are directly regulated by a federal agency and submit monitoring reports that are available to NMFS. Under EPA's proposed rule, the situation at state-regulated facilities will be worse, and harder to monitor.

The Services and EPA "may not rely on plans for future actions to reduce threats and protect a species." *Or. Natural Resources Council v. Daley*, 6 F. Supp. 2d 1139, 1154 (D. Or. 1998). The agencies should be "reasonably certain" that promised future actions will occur before concluding that a threatened species is not jeopardized. *Northwest Envtl. Advocates v. EPA*, 268 F. Supp. 2d 1255, 1273 (D. Or. 2003). Neither the Services nor EPA can be reasonably certain that a roll out of endangered species protections one cooling water intake at a time under EPA's proposed rule, at facilities regulated by states, will actually occur. And even if listed species protections are put in place through case-by-case decisions, as EPA envisions, this scheme is not reasonably certain to control the killing of listed species or avoid damaging their habitat. The example of the St. Lucie plant strongly suggests that the Services cannot have reasonable confidence that EPA's proposed rule will achieve even the small reductions in take of listed species that EPA projects.

d. Thermal Discharge Causing Widespread Adverse Habitat Modification

EPA also failed to present the Services with readily available data about the extent to which existing cooling water intakes discharge thermal loads that adversely modify the habitats of hundreds of listed species.[50] In the Biological Evaluation, EPA catalogued all of the reasons that temperature is considered a "master environmental variable for aquatic ecosystems" and the many ways in which it may adversely affect endangered species and their habitats (BE p.70-71), but never attempted to quantify the impacts of thermal discharge on habitats and never considered or attempted to evaluate the impact of thermal discharges on specific habitats or species. Even a cursory review shows that EPA has ignored readily available information about the specific harms to listed species and their habitats caused by thermal discharges.

For example, Madden *et al.* (2013) reviewed "federal datasets documenting water temperature at intakes and discharges from power plants during the summer in the United States between 1996 and 2005."[51] They point out that, since 1974, the Energy Information

[50] "Significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including, breeding, spawning, rearing, migrating, feeding or sheltering" constitutes the taking of endangered species. 50 C.F.R. § 222.102.

[51] N. Madden, A. Lewis and M. Davis, "Thermal effluent from the power sector: an analysis of once-through cooling system impacts on surface water temperature," 8 Environ. Res. Lett., Article ID 035006, at 2 (2013).

Administration has compiled systematic records of water withdrawals, discharges, and temperatures from power plants using once-through cooling systems, which make up the bulk of the regulated universe by volume under Section 316(b). They also identify other sources of information on once-through cooling system thermal discharges to make up for deficiencies in the EIA database. Using an approach similar to the one that EPA used to identify overlaps between endangered species and cooling systems generally, Madden *et al.* used the presence of high numbers of endangered species as a proxy for biodiversity to focus their analysis on 33 watersheds where very high aquatic biodiversity (more than 10 imperiled species) overlap with high thermal discharges. *See* Madden *et al.* at 3 and Figure 2, at 5. The authors then examined the Upper Catawba watershed in North and South Carolina as an example of one such watershed. The found that all five power plants in the Upper Catawba "reported discharging water that exceeded state limits on ΔT and maximum discharge temperatures during the summer (figure 3). However, their NPDES permits revealed that all five power plants had been granted thermal variances that allowed them to exceed state water quality limits[.]" Madden *et al.* at 5. EPA is currently reviewing two of these permits directly, but the wider point is clear: EPA's rule will continue the operation of cooling water intakes that are poorly regulated at the state level and are located in watersheds where they are likely to impinge, entrain, and adversely modify the habitat of listed species. EPA could use a technique like this to focus on high priority watersheds.

Note that EPA provided no information to the Services about the Catawba watershed. But EPA's direct review of permits in the watershed, coupled with the fact that thermal discharges into the Catawba were linked to mass die-offs of striped bass in 2004, 2005, and 2010,[52] strongly suggest the potential for direct or indirect effects on listed species living in various reaches of the Catawba, including different sturgeon and freshwater mussel species.

The Union of Concerned Scientists and independent scientists from a number of governmental and academic laboratories have formed a collaboration called "Energy and Water in a Warming World" (EW3), which has also closely examined existing water withdrawal and thermal discharge data. At the outset, it is worth noting that EW3 identified major inaccuracies in the Energy Information Administration data on water withdrawals that EPA has based part of its own regulatory analyses upon. The problems vary from the unfortunate, such as power plants reporting estimated rather than measured values, to the egregious: "201 freshwater-cooled coal and natural gas plants nominally reported water use to the EIA but claimed to withdraw and consume no water at all (Figure 8). Such reporting is obviously in error: these plants could not run without water." EW3 at 21. Based on their size and operations, EW3 estimates that this "mistake" leads to unreported withdrawals of 1.1 trillion to 2.6 trillion gallons. *See* EW3 at 22.

EW3 also identified 350 power plants that discharge wastewater at peak summer temperatures exceeding 90 degrees Fahrenheit, and singled out power plants in the upper Dan

[52] *See* A Report of the Energy and Water in a Warming World Initiative "Freshwater Use by U.S. Power Plants; Electricity's Thirst for a Precious Resource" November 2011, at 29, *available at* www.ucsusa.org/publications (hereinafter "EW3").

River of North Carolina and Virginia for peak summertime discharges exceeding 110 degrees Fahrenheit, a temperature that is generally lethal to wildlife and far in excess of most state standards. *See* EW3 at 27-29. The Dan River is home to rare and endangered freshwater fish and mussels, including the James spinymussel.

In its 2011 publication, "Freshwater Use by U.S. Power Plants; Electricity's Thirst for a Precious Resource," EW3 compiled a record of thermal discharges from power plants that have caused and have potential to cause significant harm to aquatic organisms:

- In the summer of 2010, Tennessee River water temperatures rose above 90°F, forcing the Browns Ferry nuclear plant in Athens, AL, to drastically cut its output for nearly five consecutive weeks in order to meet water quality standards. A similar event occurred in August of 2007 and 2011.

- Until Georgia Power retrofitted the Plant Harllee Branch coal-fired power plant on the Lake Sinclair reservoir on Georgia's Oconee River with a cooling tower in 2002, extensive fish die-offs had been common.

- In August 2007, the Riverbend and G.G. Allen coal plants discharged cooling water in excess of water quality based effluent limits designed to protect fish in North Carolina's Catawba River. The plants were forced to cut back power generation in an effort to comply with these limits.

- In 2006, Quad Cities Reactors near Cordova, Illinois reduced power output because thermal discharges exceeded water quality based effluent limits. In 2012, the plant's owners sought a 316(a) variance to increase the temperature of their discharge.

- In summer 2012, the Braidwood Nuclear Plant, in Illinois, raised the temperature of its receiving water body to 102°F.

- Throughout 2012, the E.D. Edwards plant, also in Illinois, required a special variance to continue operating because it could not comply with extant thermal limits designed to protect aquatic organisms.

- The Joliet, Will County, and LaSalle power plants, also in Illinois, needed similar thermal variance throughout the summer of 2012 (in the case of LaSalle, the variance was required from March).

- In the summer of 2012, the Cumberland and Gallatin coal plants in Tennessee both had to curtail operations in order to meet thermal discharge limits set to protect the Cumberland River.

- The Dresden nuclear plant in Illinois exceeded thermal limits set to protect the DesPlaines and Kankakee Rivers in 2012 (and later received a provisional variance to these limits).

- To avoid violating thermal limits, the Monticello nuclear plant in Minnesota reduced power output throughout August 2006 and August 2010.

To overcome the gaps in current temperature data sets, scientists have also developed thermal exchange models for evaluating the interactions between power plant discharges and the environment that allow for a more systematic assessment of the effects of EPA's decision to allow continued operations of once-through cooling systems. Miara *et al*. (2013) describe "a simulation model of power plant operations, the Thermoelectric Power and Thermal Pollution Model (TP2M)" that "simulates the operations of contemporary and emerging power plants according to climate and hydrology conditions, engineering requirements, electricity demand and environmental regulation," and is "coupled to a regional biogeophysical model, the Framework for Aquatic Modeling in the Earth System (FrAMES) . . . a spatially distributed hydrology model with gridded river networks (3 min) that simulate transport, mixing and re-equilibration of water temperatures along river reaches at a daily time step" in order to "quantify, in high-resolution, regional patterns of thermal pollution, electricity generation on a single power plant and regional scale, river temperatures and power plant efficiency losses associated with changes in available cooling water that incorporates climate, hydrology, river network dynamics and multi-plant impacts."[53]

This kind of modeling analysis could assist the Services in trying to quantify and estimate the effects on various aquatic habitats of the thermal discharges from hundreds of once-through cooling systems that will continue to operate under EPA's rule. EPA should have run such models for itself, or sought the assistance of these or similar modelers. Notably, after running different configurations of the model, one of Miara *et al*.'s findings is that "by significantly reducing the amount of heat input to the river system, conversion to [cooling towers] result in the greatest improvements for aquatic ecosystem indicators." Miara *et al*. at 7 (Col. 2).

The Miara *et al*. study also examines the cumulative effects of a scenario in which the current cooling configuration in the Northeast remains in place and thermal pollution load remains similar to current conditions, combined with the anticipated climate change in the Northeast. The anticipated impacts of climate change over the coming decades include "increases in ambient temperatures and precipitation" and "higher seasonal fluctuation of stream flow" leading to "reduced river discharge in mid-northern latitudes (i.e. Northeastern US) despite an increase in precipitation. Combined low flow and rising temperatures will result in a warming of rivers." *Id.* at 8. The model indicates a greater than 100% increase "in unsuitable habitat for

[53] Ariel Miara, Charles J. Vorosmarty, Robert J. Stewart, Wilfred M. Wollheim and Bernice Rosenzweig, "Riverine ecosystem services and the thermoelectric sector: strategic issues facing the Northeastern United States," 8 Environ. Res. Lett., Article ID 025017, at 2 (2013).

fishes with maximum average weekly temperature thresholds of 24 C (cold) and 29 C (cool) [in the Northeast]." *Id.* The study also indicates a similar increase in unsuitable habitat "for fishes with 34 C (warm) thresholds," but this could be mitigated by heightened efficiency and enforcing otherwise applicable water quality standards on thermal discharges (i.e. ending the use of CWA Section 316(a) variances). *Id.*

Applying the same models, Stewart *et al*. (2013) found first that 28.4% of all the heat generated at inland Northeastern thermoelectric plants was transferred directly to rivers via once-through cooling systems (by comparison, the amount of heat converted to electricity was only marginally greater at 34.3%).[54] The following table is adapted from Stewart *et al*. (*See id.* at 4). It quantifies the impact of once-through cooling ("OTC") waste heat on major river basins in the Northeast.

Basin	Electricity produced with OTC (TWh/yr)	OTC Heat Input to River (PJ/yr)	Temp. Increase at River Mouth (deg C) (all generation)			Heat attenuated by riverine ecosystem (%) (all generation)		
			Summer	Winter	Annual	Summer	Winter	Annual
Atlantic (all rivers)	250.4	1055	1.9	0.9	0.9	11.9	12.9	11.3
Penobscot	1.7	7.6	0.2	0.1	0.1	7.6	22.3	10.5
Merrimack	13.3	25.5	1.0	0.6	0.6	19.1	33.6	22.2
Connecticut	23.4	50.3	0.8	0.4	0.5	20.3	39.6	23.8
Hudson	36.1	252.3	5.0	2.4	2.5	6.4	7.5	6.2
Delaware	12.2	86.7	2.7	0.9	1.1	12.9	11.9	12.5
Susquehanna	33.8	239.7	2.9	1.3	1.5	11.1	11.6	9.7
James	24.5	177.6	8.2	3.1	3.9	21.5	13.9	18.1

These figures clearly show the significant impacts of all this waste heat. For example, the Connecticut and Merrimack Rivers absorb and dissipate almost 25% of the heat generated at thermoelectric plants along their banks, meaning that they continually experience significant warming for much of their length. And the effect upon the estuaries at the mouths of all these rivers is substantial. In summer time, when many threatened and endangered species approach their thermal tolerance limits and dissolved oxygen impairments in coastal aquatic habitats are at their worst, the Hudson, Delaware, Susquehanna and James rivers are all several degrees warmer

[54] *See* Robert J. Stewart, Wilfred M. Wollheim, Ariel Miara, Charles J. Vorosmarty, Balazs Fekete, Richard B. Lammers and Bernice Rosenzweig, "Horizontal cooling towers: riverine ecosystem services and the fate of thermoelectric heat in the contemporary Northeast US," 8 *Environ. Res. Lett.*, Article ID 025010 at 3 (2013).

at the mouth than they would otherwise be.[55] The thermal discharges from once-through cooling systems that will continue to operate under EPA's rule contribute to dissolved oxygen impairments that affect dozens (if not hundreds) of listed species and their habitats.

The impact of thermal discharges into these rivers is equivalent in scale to many decades (or in the case of the Hudson and the James Rivers, more than a century) of anticipated climate change. Put differently, ending this adverse impact on the habitat of hundreds of listed species would help to buy humanity and these species another 100 years to recover and adapt to the coming changes in our climate.

Stewart *et al.* conclude that "[i]n aggregate, OTC plants produce all of the total net annual heat loads to rivers." Stewart *et al.* at 6. The researchers then mapped the dissipation of those heat loads, finding that hundreds of river miles in most of the listed river systems are between 1 and 5 degrees warmer in summer due to these discharges. *See* Stewart *et al.* at 6. Effectively, the "thermal plumes" in major Northeastern rivers take over the whole river for hundreds of miles.

Stewart *et al.* also provide EPA with a way to quantify and locate adverse habitat modifications, instead of just giving up. Their paper lists 12 common aquatic species and their average weekly temperature tolerance and uses the model results to quantify the number of river kilometers that are rendered unsuitable by discharges from once-through cooling systems regulated by EPA's rule. Since the model described in these papers is a gridded network, temperature values are determined for each point in the grid, thus the model provides the exact locations of the affected reaches in the Northeast. All of the supporting data and figures for these studies are available to the Services electronically. Even if EPA fails to act on this information, using these modelling techniques and results, and taking the species discussed in Stewart *et al.* as proxies for endangered species with similar thermal tolerances, the Services could quantify and precisely locate the habitats adversely affected by EPA's decision to authorize continued operation of once-through cooling systems.

Again, EPA provided none of this readily available information in its consultation package; it simply threw up its hands and claimed that it was "not possible" to evaluate the impacts of individual facilities whose continued operation will be authorized by this rule. BE at 37. For most of the species discussed in the BE, EPA simply asserts that "EPA does not have sufficient data to evaluate to what extent these species have also been affected by environmental alterations or indirect effects of existing CWIS and associated discharges." *See* BE at 41-53. EPA repeated this claim with respect to all listed cranes and storks, marine birds, shorebirds, waterfowl, Everglade Snail Kite, all of the eighty three listed species of clams, as well as corals,

[55] Note, however, that the model does not account for tidal dilution, which is an important variable in the Hudson, Delaware, and James rivers.

Atlantic salmon, logperch, multiple minnow species, Pacific eulachon, Smalltooth sawfish,[56] Tidewater goby, Unarmored threespine stickleback, Pacific salmonids, rockfish species, seven sturgeon species, three sucker species, six Western trout species, whales, pinnipeds, manatees, sea otters, endangered species of sea turtles, and fifteen species of freshwater snails. Despite EPA's obvious lack of diligence in seeking out the best available information about these species, the fact is that the Services can obtain a great deal of information about these species with only a modicum of effort. It falls to the Services to obtain these data and analyze them on its own, or to extend the consultation period and refuse to issue a BiOp until EPA fulfills its statutory duty to provide the best available information for the Services' review.

e. Invasive Species in Thermal Plumes

Another area in which EPA failed to provide the best available data to the Services is with respect to the role of these thermal plumes in sheltering and promoting the growth of invasive species that harm threatened and endangered native species. EPA notes correctly that invasive species are a stressor affecting listed species and that "[t]hermal discharges from 316(b) facilities may extend the seasonal duration of non-resident organisms, allowing transient summer species to become permanently established in geographic areas beyond their historical range." But EPA provides only the example of increased abundance and overwintering of "the predacious ctenophore *Mneimiopsis leidyi*" in Mount Hope Bay, Massachusetts. This comb jelly is a seasonal resident native to the Atlantic coast. EPA's observation downplays the seriousness of this problem.

EPA failed to inform the Services of a far more worrying development: in recent years, scientists have documented the role of thermal plumes as protective niches for Asian clams (*Corbicula fluminea*) and quagga mussels (*Dreissena bugensis*), two highly invasive species that threaten dozens of listed freshwater bivalves in waterbodies already affected by large, regulated cooling water intakes (including waterbodies designated as critical habitat for bivalves). More than a decade ago, Mitchell *et al.* (1996) found that quagga mussels are present in abnormally high concentrations in areas affected by the thermal discharge plume of a power station and posited that, by decreasing the severity of wintertime low temperatures, thermal plumes create an opening for these invasives to establish and spread.[57] Thermal plumes were also the launching point for an Asian clam invasion of the Connecticut River.[58]

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[56] Charlotte Harbor, Florida is in the National Estuary Program and is designated critical habitat for the smalltooth sawfish.

[57] Jeremy S. Mitchell, Robert C. Bailey, and Richard W. Knapton, "Abundance of Dreissena polymorpha and Dreissena bugensis in a warmwater plume: effects of depth and temperature," 53 *Can. J. Fish. Aquat. Sci.* 1705, 1710 (1996).

[58] *See* D.E. Morgan, M. Keser, and J.T. Swenarton, "Population dynamics of the Asiatic clam, *Corbicula fluminea* (Muller) in the Lower Connecticut River: Establishing a foothold in New England," 22 *J. of Shellfish Research* 193-203 (2003).

Last year, Simard *et al.* (2012) found that the thermal plume of the Gentilly-2 nuclear power plant in Quebec, on the north short of the St. Lawrence River, now provides a stable winter home for a population of invasive Asian clams.[59] With this discovery, the Asian clam has extended its northern boundary to include the entire United States.

These scientific studies, and others like them,[60] are readily available to the Services. Their findings should be reviewed and considered by EPA and the Services as they evaluate whether continued operation of existing once-through cooling systems jeopardizes the continued existence of numerous species of freshwater bivalves and/or adversely modifies their critical habitats. EPA did not include these or similar studies in its bibliography for the BE.

f. Connecticut River – Mount Tom Generating Station Biological Assessment

The most egregious example of EPA's failure to provide the best available data is EPA's failure to discuss information that is obviously in its possession, such as EPA Region 1's 2012 Biological Assessment for reissuance of a NPDES permit to the Mount Tom Generating Station, located on the Connecticut River.[61] Because it is in the non-delegated state of Massachusetts, Mount Tom is one of the few NPDES permitted facilities that EPA actually regulates directly. In preparing a Biological Assessment, although Region 1 focused on the portion of the Connecticut River near Holyoke, Massachusetts, the agency compiled a great deal of information that would be beneficial to the Services in determining the effects of EPA's rule throughout the length of the river.

The Biological Assessment for Mount Tom contains relevant information about conditions in the Connecticut River, including average seasonal flows and temperatures, habitat quality, and a host of water quality indicators, as well as information about the species found in the area. Among other highly relevant facts, the Biological Assessment states that the population of shortnose sturgeon in the Connecticut River appears to be stable at around 1000 fish (orders of magnitude below historic levels), and is divided into two breeding populations above and below the Holyoke Dam. The Assessment also provides important information about the breeding success of these fish, for example, the presence of high numbers of reproductive organ tumors that may have a negative effect on fecundity and are believed to be associated with PAH contamination in the Connecticut River. Finally, the Assessment reviews multiple stressors on sturgeon throughout the Connecticut River and concludes that continued operation of the cooling

[59] *See* M. Anouk Simard, Annie Paquet, Charles Jutras, Yves Robitaille, Pierre U. Blier, Réhaume Courtois and André L. Martel, "North American range extension of the invasive Asian clam in a St. Lawrence River power station thermal plume," 7 *Aquatic Invasions* 81–89 (2012).

[60] *E.g.,* I.C. Rosa, J.L. Pereira, R. Costa, F. Goncalves and R. Prezant, "Effects of upper-limit water temperatures on the dispersal of the Asian clam corbicula fluminea," *PLoS One* 7 e46635 (2012).

[61] *See* EPA Region 1, Water Permits Branch, Office of Ecosystem Protection, "Biological Assessment Mount Tom Generating Station National Pollution Discharge Elimination System Permit Reissuance (Permit No. MA0005339)," dated May 25, 2012.

water intake at Mount Tom likely will impinge and entrain specific numbers of adult, juvenile, and larval shortnose sturgeons at the Mount Tom plant, and therefore will adversely affect listed organisms, requiring formal consultation with the Services that the Commenters believe is presently ongoing.

EPA could have included information from this and other water-body specific research, such as EPA's investigations in the Catawba and Dan River watersheds, noted above. Clearly, this information would aid the Services in evaluating the effect of authorizing continued operation of multiple cooling water intakes on the Connecticut, Catawba, and Dan Rivers. Yet EPA chose to simply state that there was no available information about the effects of intakes on particular waterbodies or species affected by this rule.

7. The Services cannot reach a no jeopardy finding on the basis supplied by EPA.

Although it is short on specifics, EPA's Biological Evaluation provides a great deal of alarming information on the broad trends, risks to listed species and critical habitat, and pervasive environmental damage caused by cooling water intakes. As noted above, cooling water intakes regulated under this rule affect 215 listed aquatic species and discharge waste heat into 290 designated critical habitats.[62] In addition, EPA points out that:

- "Overall, aquatic species are disproportionate ly imperiled relative to terrestrial species. For example, 39 percent of freshwater and diadromous fish species . . . , 67 percent of freshwater mussels . . . and 48 percent of crayfish . . . are classified as T&E." BE at 3.

- "Proximity to T&E species and/or designated critical habitat (in addition to consideration of Essential Fish Habitats) is a documented concern at many power plant facilities." BE at 3. There is an extremely high degree of overlap between listed species' habitat and cooling water intakes. *See* BE at 55-62.

- "For T&E species, I&E from CWISs may represent a substantial portion of annual reproduction. Consequently, I&E may either lengthen species recovery time, or hasten the demise of these species much more so than for species that are abundant. For this reason, the population-level and social values of T&E losses are likely to be disproportionately higher than the absolute number of losses that occur." BE at 3.

- The available data likely understates threats to listed species because regulators do not routinely revisit concerns surrounding threatened and endangered species during relicensing or permitting proceedings. *See* BE at 4.

[62] *See* BE at 60 and Table 7-1, 83-88. The 290 designated critical habitats overlap each other (i.e. the same habitat is used by multiple species).

- Endangered species are rarely found in impingement and entrainment samples because sample sizes are small and by definition listed species are rare. "T&E species are found at low population densities, and the volume of water sampled by facility-level impingement and entrainment studies is low. Thus, it is likely that many T&E species suffered IM&E outside of sampling periods and are never recorded." BE at 63-64. Therefore, the absence of listed species in sampling data does not mean they aren't being killed. If listed species are present in the vicinity of cooling water intakes, they can be killed periodically even if individuals are not found during rare sampling episodes.

- EPA's investigation of NPDES permits for facilities known to overlap with the ranges of multiple endangered species found that none of the permits contained conditions aimed specifically at protection of listed species and there was little or no analysis related to listed species at these facilities. *See* BE at 4.

- "The operation of CWISs and discharge returns significantly alter patterns of flow within receiving waters, both in the immediate area of the CWIS intake and discharge pipe, and in mainstream waterbodies. Flow alteration may be particularly disruptive in inland riverine settings. Flow alterations can create changes in the overall aquatic habitat and thus affect T&E species in a number of ways." BE at 68.

- "Many T&E species are particularly vulnerable to degraded water quality" (BE at 69) and "many aquatic organisms subject to the effects of cooling water withdrawals reside in impaired (i.e., CWA 303(d) listed) waterbodies. Accordingly, they are potentially more vulnerable to cumulative impacts from other anthropogenic stressors." BE at 65.

Thus EPA's Biological Evaluation, while vague, provides a great deal of negative information demonstrating that cooling water intakes may jeopardize the survival and recovery of listed species, or may adversely modify designated critical habitat. And EPA has failed to provide the kind of site-specific, quantitative data that would be needed to demonstrate that it will comply with its statutory obligation to avoid jeopardy and adverse modification.

Despite EPA's failure to provide the best available data, it is ultimately the obligation of the Services to issue comprehensive BiOps that reach a well-reasoned final opinion about whether EPA's action will jeopardize the continued existence of any species or adversely modify habitat. Under guidance issued by the Services, when faced with pervasive uncertainty and an obligation to complete a BiOp promptly, the Services must "develop the biological opinion with the available information[,] giving the benefit of the doubt to the species." Handbook at 1-7; *see also Natural Res. Defense Council v. Kempthorne*, 506 F. Supp. 2d 322, 360 (E.D. Cal. 2007) (agency cannot abdicate responsibilities by characterizing available information as uncertain, in the face of uncertain information Congress intended to give benefit of the doubt to the endangered species); *Rock Creek Alliance v. U.S. Fish & Wildlife Serv.*, 390 F. Supp. 2d 993, 1008, (D. Mont. 2005) ("[A] tie in the evidence should go to the species, especially because of female mortality. FWS must demonstrate a rational explanation for its conclusions, and given the

clear possibility that bears are at least not increasing, contemplating the loss of additional bears related to the mine is not rational."), *accord Conner v. Burford*, 848 F.2d 1441, 1454 (9th Cir. 1988) (requirement to use the best available information must always be met because "to hold otherwise would eviscerate Congress' intent to give the benefit of the doubt to the species.").

In the face of so much information about the potential of cooling water intakes to cause harm, so little information to suggest that endangered species can continue to withstand this harm, and so little effort by EPA to provide the best available data or establish a regulation that positions the agency to closely monitor and control harm to endangered species in the future, the prudent way to give the benefit of the doubt to listed species is to conclude that EPA's rule will jeopardize their continued existence.

NMFS' 2012 Biological Opinion on the U.S. Army Corps of Engineers' nationwide permit program provides a recent example of this kind of jeopardy finding in the face of poor information.[63] The Biological Opinion addressed the Army Corps' decision to renew more than 40 nationwide general permits that collectively authorized, *every year*, tens of thousands of actions that involve dredging, filling, and modification of tens of thousands of acres of aquatic and wetland habitats throughout 45 of the 50 states.

NMFS concluded that the Army Corps' nationwide permits – which set up a system of one-time authorizations with little follow up, notification of permitted activities, and monitoring by the Army Corps – authorized the kinds of activities known to cause substantial harm to listed species and left the Corps blind to the impacts its permitting might have and unable to respond to emergent problems:

> [T]he U. S. Army Corps of Engineers has failed to insure that the Nationwide Permits it proposes to use to authorize activities in navigable and other waters of the United States are not likely to jeopardize the continued existence of endangered and threatened species under the jurisdiction of the National Marine Fisheries Service and are not likely to result in the destruction or adverse modification of critical habitat that has been designated for these species. . . .
>
> [T]he evidence available suggests that the USACE has not structured its proposed Nationwide Permit Program so that the USACE is positioned to know or reliably estimate the general and particular effects of the activities that would be authorized . . . and, by extension, be positioned to know or reliably estimate the general and particular effects of those discharges on endangered and threatened species. The USACE also has not structured its proposed Nationwide Permit Program so that it is positioned to take actions that are necessary or sufficient to prevent the activities that

[63] NMFS, NOAA, U.S. Dept. of Commerce, *National Marine Fisheries Service Endangered Species Consultation Biological Opinion on U.S. Army Corps of Engineers' Nationwide Permit Program* (Feb. 2012).

> would be authorized by the proposed Nationwide Permits from individually or cumulatively degrading the quality of the waters of the United States that would receive those discharges. It has not structured its proposed Nationwide Permit Program so that the USACE is positioned to *insure* that endangered or threatened species and designated critical habitat are not likely to be exposed to [harm] . . . [a]nd it has not structured its proposed Nationwide Permit Program so that the USACE is positioned to *insure* that endangered or threatened species and designated critical habitat do not suffer adverse consequences if they are exposed to [harm].
>
> To satisfy its obligation pursuant to section 7(a)(2) of the Endangered Species Act of 1973, as amended, the USACE must place itself in a position to (a) monitor the direct, indirect, and cumulative impacts of the activities the proposed Nationwide or General permits would authorize, (b) monitor the condition of those effects on the subwatersheds or watersheds in which those activities occur, (c) monitor the consequences of those effects for listed resources under NMFS' jurisdiction, and (d) take timely and effective corrective actions when the consequences of those actions exceed measurable standards and criteria.[64]

In this rule, EPA is setting itself up in much the same situation: EPA is prepared to authorize the operation of cooling water intakes despite the fact that they cause harms that the agency has not yet managed to assess, and has no future plans to assess. The information provided by EPA is so clearly inadequate that the Services cannot reasonably conclude that EPA's regulation will avoid jeopardizing the continued existence of endangered or threatened species and will avoid destroying or adversely modifying designated critical habitat. The only appropriate conclusion for a BiOp based on EPA's limited data provision is a jeopardy finding like that reached in the Army Corps BiOp.

8. The deadline for EPA to issue a final rule is likely to be extended; the Services should take this opportunity to demand that EPA provide the Best Available Data.

The Services cannot reasonably conclude that EPA's 316(b) regulations will avoid jeopardy based only on the limited information provided by EPA about the harms to listed species from continued operation of existing cooling water intakes. Nor, on this basis, can the Services issue quantified incidental take statements with clear triggers for subsequent action. In these circumstances, one option open to the Services is to reach a jeopardy conclusion and set forth a reasonable and prudent alternative to EPA's rule.

But "[w]here significant data gaps exist," the Services' handbook lays out another alternative as well: "if the action agency concurs, extend the due date of the biological opinion until sufficient information is developed for a more complete analysis." Handbook at 1-7. At this stage, gathering and analyzing new information is the only defensible alternative to issuing a

[64] *Id.* at 223-224.

jeopardy opinion. EPA has not provided the best available data, and the Services cannot issue opinions that are not based on the best available data.

Commenters have demonstrated that EPA has ignored readily available information sources ranging from government reports to thermal modeling analyses. The Services' Handbook explains what is to be done in such cases:

> If relevant data are known to be available to the agency or will be available as the result of ongoing or imminent studies, the Services should request those data and any other analyses required by the regulations at 50 CFR §402.14(c), or suggest that consultation be postponed until those data or analyses are available . . . .

Handbook at 1-6.

9. Closed-Cycle Cooling Technology should be the focus of any Reasonable and Prudent Alternative (RPA) analysis or Reasonable and Prudent Measures (RPM) analysis.

Unfortunately, EPA's Biological Evaluation did not provide the Services with information on closed-cycle cooling technology. More information about closed-cycle cooling would assist the Services to select Reasonable and Prudent Alternatives in case of a jeopardy finding, and to develop Reasonable and Prudent Measures for inclusion in an incidental take statement. Again, Commenters seek to assist the Services in filling this gap.

Closed-cycle cooling technology provides the only reasonable and prudent alternative means for EPA to minimize the adverse environmental impacts of cooling water intakes under Section 316(b) of the Clean Water Act.

To that end, we attach to this letter our comments to EPA on its proposed rule as published in 2011.[65] Those comments discussed the use of closed-cycle cooling in detail, including the technical and economic feasibility of a national rule that would require widespread use of cooling towers. Of course, Commenters cannot bridge the data gap left by EPA alone, and encourage the Services to seek additional information.

Widespread adoption of closed-cycle cooling in place of once-through cooling intakes is a valid Reasonable and Prudent Alternative:

1. closed-cycle cooling is almost certain to avoid jeopardizing endangered species by reducing impingement and entrainment by 98% and eliminating thermal discharges;

2. closed-cycle cooling is consistent with the purposes of EPA's rule – minimizing the adverse environmental impact of cooling water intakes;

[65] August 2011 Comment Letter.

3. closed-cycle cooling is consistent with EPA's authority – EPA considered such options in developing this rule; and

4. closed-cycle cooling is economically and technologically feasible.

See 50 C.F.R. §402.02 (defining the elements of a Reasonable and Prudent Alternative).

In developing its cooling water intake rule, EPA had before it regulatory options – national categorical standards based on the performance of closed-cycle cooling systems (Options 2 and 3 from the proposed rule) – that would protect the environment at a reasonable cost to industry, create jobs, and cause no significant adverse effects on the environment, electric reliability, or consumer prices. EPA unlawfully rejected these options in favor of preserving the status quo. Closed-cycle cooling is a feasible and readily affordable technology. A national, categorical entrainment standard based on that technology could include a narrow safety-valve variance to properly take account of site-specific factors for those plants fundamentally different than the majority.

EPA can and should establish a uniform national standard based on the use of closed-cycle cooling technology: EPA determined that closed-cycle cooling is a best performing technology[66] and that numerous existing facilities had retrofitted to closed-cycle.[67] During the rulemaking process, EPA expressed concern that "closed-cycle cooling is not practically feasible in a number of circumstances" that "are not isolated or insignificant."[68] But Congress gave EPA the ability to subcategorize regulated industries and to offer variances precisely to address such concerns. *See* 33 U.S.C. § 1311(n) (fundamentally different factors variance). And properly crafted variance provisions have been upheld under Section 316(b) before. *See Riverkeeper, Inc. v. U.S. EPA,* 358 F.3d 174, 193-94 (2d Cir. 2004).

As the attached comments explain more fully, Options 2 and 3 from EPA's proposed rule, both of which involve conversion of many existing intakes to closed-cycle systems, are technically and economically feasible. It is technically feasible to set uniform national standards because closed-cycle cooling and other technologies are available to the industry as a whole and EPA has the ability to issue variances in the rare case where it is technically infeasible. As the comments show in detail, the technical issues that EPA raised in the preamble to the proposed rule are not serious obstacles to widespread adoption of closed-cycle cooling.

The attached analysis also shows that closed-cycle cooling retrofits are economically feasible – they are well within the economic reach of virtually all regulated entities. The economic feasibility test under the Endangered Species Act is a test of affordability, not a cost-

[66] *See* 76 Fed. Reg. at 22,203 (col. 3).

[67] *See* 76 Fed. Reg. at 22,204 (col. 1).

[68] 76 Fed. Reg. at 22,207 (col. 1).

benefit analysis. The "economically and technologically feasible" language in the Act does not require an agency to "balance the benefit to the species against the economic and technical burden on the industry before approving an RPA" because this would be inconsistent with the purposes of the ESA. *Delta Smelt Consol. Cases v. Salazar*, 760 F. Supp. 2d 855, 955 (E.D. Cal. 2010). As the Supreme Court has explained, Congress determined that the protection of endangered species is, literally, priceless. *See TVA v. Hill*, 437 U.S. 153, 184 (1978) ("The plain intent of Congress in enacting this statute was to halt and reverse the trend toward species extinction, whatever the cost. This is reflected not only in the stated policies of the Act, but in literally every section of the statute.").

For these reasons, as explained more fully in the attached comments to EPA, a rule that requires widespread adoption of closed-cycle cooling is a reasonable and prudent alternative to EPA's preferred option, which jeopardizes the continued existence of many species. In fact, it is the only reasonable and prudent alternative.

10. A closed-cycle cooling rule is the only option that allows the services to develop a defensible incidental take statement.

Better information about closed-cycle cooling is also necessary because, without it, the Services cannot develop valid incidental take statements. By reducing the take of endangered species and the instances of adverse habitat modification by more than 98%, the use of closed-cycle cooling will bring incidental take of listed species down to a level that is actually manageable and quantifiable for the Services.

A BiOp that concludes that a federal action does not violate Section 7(a)(2) of the ESA must include an incidental take statement that "specifies the impact, i.e., the amount or extent, of such incidental taking on the species." 50 C.F.R. 402.14(i); *see also* 16 U.S.C. § 1536(b)(4). An incidental take statement must set "a 'trigger' for further consultation at the point where the allowed incidental take is exceeded, a point at which there is a risk of jeopardizing the species." *Miccosukee Tribe of Indians v. United States*, 566 F.3d 1257, 1271-72 (11th Cir. 2009) (citing 50 C.F.R. § 402.14(i)(4)).

In their handbook on ESA consultations, the Services determined that to set the trigger, incidental take may be quantified through the number of individuals killed or the extent of habitat disturbed. In either case, however, "a specific number . . . or level of disturbance to habitat must be described." Handbook p. 4-50. Subsequent to issuance of the Services' handbook, the federal courts have repeatedly held that Congress clearly expressed a preference for numerical population counts in incidental take statements and therefore the number of individual animals of a species that may be taken incidentally through a federal action must be specified unless the Services and EPA can establish that no numerical value could be practically obtained. *See Oregon Natural Res. Council v. Allen*, 476 F.3d 1031, 1037 (9th Cir. 2007) (invalidating incidental take statement that used habitat markers in place of a number of animals without explaining why determining a number of animals was impracticable); *Arizona Cattle Growers' Ass'n v. United States Fish and Wildlife Service,* 273 F.3d 1229, 1250 (9th Cir. 2001)

(same); *Miccosukee Tribe of Indians v. United States*, 566 F.3d 1257, 1274 (11th Cir. 2009) (invalidating take statement and discussing cases in which Services managed to express take in numerical form even for "elusive" species including snakes and sea turtles). Even if a BiOp logically concludes that a federal action poses no jeopardy to the continued existence of endangered species, an agency that does not provide the Services with enough data to set numeric limits in the incidental take statement risks seeing the BiOp vacated. *Id.*

If EPA hopes that the Services will reach a no jeopardy and no adverse modification conclusion, and hopes to obtain an incidental take statement, then it should have provided the Services far better information. EPA's shoddy work creates a heavy burden for the Services. Blanket statements that there are no better data on the impacts of cooling water intakes or the current status of hundreds of endangered species do not build a convincing case that it is impractical to specify the amount of incidental take, particularly where Commenters can readily identify better data for particular species. "Moreover, even where numerical values are improper, an ITS still must contain some surrogate for defining the amount or extent of incidental take." *NRDC v. Evans*, 364 F. Supp. 2d 1083, 1136 (N.D. Cal. 2003) (citing *Arizona Cattle Growers' Ass'n v. United States Fish and Wildlife Service,* 273 F.3d 1229, 1239 (9th Cir. 2001). EPA's failure to provide information about the extent of habitat needed to preserve endangered species would make even this fallback option a difficult one for the Services.

Although Commenters hope to aid the Services in filling the information gap left by EPA, the fact is that EPA's rule affects hundreds of endangered species in thousands of ecosystems across the United States. The only realistic way to issue a legally adequate incidental take statement is to first reduce the severity of the rule's impacts such that the overwhelming majority of facilities no longer pose a serious threat to endangered species. Closed-cycle cooling is likely to reduce the impingement and entrainment of many endangered species at individual facilities down to single digits or tens, instead of hundreds or even thousands. And by eliminating the thermal discharge problem, closed-cycle cooling essentially ends the widespread adverse modification of aquatic habitats. The residual incidental take will occur at a small enough number of facilities, and will affect a lesser number of species, such that the problem of quantifying take can be solved.

11. The BiOp(s) must significantly improve monitoring and reporting of impacts on listed species.

As EPA acknowledges in the Biological Evaluation, the status quo is abysmal in terms of monitoring and reporting on impacts to endangered species. *See* BE at 4-5. Cooling water intakes cause considerable and illegal harm to endangered species. This harm is rarely reported and is not subject to any kind of systematic review – not at the watershed, regional, or national level, nor even at a single site over time. EPA's review of NPDES permits found little or no consideration of endangered species, and EPA acknowledges that, even under the best of circumstances, endangered species have low population densities and are rarely found in periodic impingement and entrainment sampling.

Currently even when listed species or species of concern are greatly affected by a cooling water intake, reports may not reach state or federal regulators in a timely manner, or at all. For example, on January 14, 2012, the Palm Beach Post reported that the cooling water intake at the St. Lucie power plant in Florida had killed between 50 and 75 Goliath grouper – a long-lived top predator – on a single day in August 2011. The Goliath grouper was for many years a federally listed threatened species, although thanks to a fishing moratorium the Florida population is believed to be recovering and the species was delisted several years ago. The Goliath grouper is still a protected fish in Florida waters. "Although the fish kill occurred in late August, the Florida Fish and Wildlife Conservation Commission, Florida Department of Environmental Protection and U.S. Nuclear Regulatory Commission did not learn of the magnitude of the loss until December, sparking concern by officials and outrage by researchers."[69] From the reporting, it appears that neither the EPA nor the Services were directly informed of this fish kill even six months later, although Commenters hope very much that the Services were later informed of this fish kill by their colleagues in Florida.

This kind of lax reporting environment is unacceptable. It is no surprise that EPA has a hard time locating data on fish kills at cooling water intakes. As a condition of any BiOp(s), the Services should require EPA to dramatically improve its ability to monitor and report on the status of endangered species. Among many other measures, this should include:

- Develop *mandatory* standard NPDES permit requirements, procedures, and reporting methods for anticipating, evaluating, and reporting take of endangered species;

- Develop monitoring requirements that include surveying fish to find parasitic life stages of endangered bivalves that are attached to the gills or other parts of fish killed by intakes;

- Require the use of hydrophones and other acoustic monitoring equipment near intakes in all rivers in which tagged endangered species are known to be present, in order to better understand the abundance and behaviors of listed individuals in the area near an intake;

- Create a response capacity at EPA that can rapidly address reported take of listed species and any situations in which a cooling water intake causes sufficient harm to trigger review under the terms of an incidental take statement.

With respect to monitoring, however, by far the most significant change that NMFS can require is to demand that permittees regulated under EPA's rule undertake environmental metagenomic sampling to detect the presence of endangered species in or near an intake, rather than relying on impingement and entrainment assessments conducted once a decade or less.

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[69] Christine Stapleton, "Nuke Plant Fish Kill Leads to Improved Reporting Procedures," *Palm Beach Post* (Jan. 14, 2012), http://www.palmbeachpost.com/news /news/state-regional/nuke-plant-fish-kill-leads-to-improved-reporting-p/nL3C9/.

EPA admits that current monitoring practices are very unlikely to detect the presence of endangered species. And even when impingement and entrainment sampling are carried out by experienced biologists, the early life stages of listed species (eggs, larvae) are frequently difficult or impossible to distinguish from closely related species and are not reported or are lumped into a single genera.

There is no reason to continue EPA's dependence on such limited data. With the dramatic advances in genetics and bioinformatics, and with the rapid and significant decreases in the cost, time, and complexity of shotgun sequencing, chip-based analysis, and related techniques, there has been an explosion in the use of metagenomic sampling. Today, researchers throughout the United States can sample environmental media for genetic markers (or whole genomes) of multiple species at the same time. The National Academy of Sciences has been heavily promoting the use of environmental metagenomic analyses for several years.[70] It is quite feasible at this point for any facility operating a cooling water intake to periodically collect water samples, as well as samples of entrained and impinged biomass, and have them tested to detect DNA sequences unique to listed species known to inhabit the area.

12. As a condition of any BiOp, the Services must demand that EPA's rule ensures that all NPDES permits authorizing operation of a cooling water intake state clearly that permitted facilities must obtain an Incidental Take Permit under Section 10 of the ESA if there are listed species or critical habitat in the vicinity of the facility that may be adversely affected by its operation.

EPA's Biological Evaluation repeatedly makes reference to the NPDES permitting process and the possibilities of protecting endangered species through that process. As discussed above, the NPDES process does not and cannot excuse EPA from complying with its obligations under Section 7 of the ESA. Before finalizing this rule, EPA, with the advice of the Services, must reasonably conclude that its rule is not likely to jeopardize the survival, recovery, or critical habitat of listed species. But the Endangered Species Act applies not just to EPA and the Services; it extends to private actors too.

Particularly where, as here, the information provided by EPA is so shoddy that it precludes any possibility of serious analysis, EPA cannot abuse the Section 7 consultation process in a way that would insulate future take of listed species or adverse modification of critical habitat from the protections of the Act. EPA must make clear to regulated entities that, however EPA chooses to fulfill its duties under Section 7 of the Act, nothing in this consultation process can eliminate the strict obligation imposed on industrial facilities by Section 9 of the Act not to take endangered species or harm their habitat.

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[70] *See, e.g.*, Committee on Metagenomics: Challenges and Functional Applications, National Research Council, *The New Science of Metagenomics*, National Academis Press (2007), *available at* http://www.nap.edu/catalog. php?record_id=11902.

Functionally, the way for the Services to accomplish this is to insist that, as a term or condition of any BiOp, EPA's rule must be amended to require that all NPDES permits authorizing operation of a cooling water intake include a clause stating that:

a. Compliance with a NPDES permit does not ensure compliance with the Endangered Species Act; and, therefore

b. NPDES permitted facilities that take in cooling water or discharge waste head must obtain an Incidental Take Permit under Section 10 of the ESA if there are listed species or critical habitat in the vicinity of the facility, because these species and habitat may be adversely affected by operation of the cooling system.

13. The Services must clarify how they will address the ongoing and rapid listing of hundreds of species and their critical habitats.

The FWS is under judicially enforceable deadlines to clear hundreds of species from the ESA listing backlog this year and in the coming two years. On May 10, 2011, the FWS entered into a Stipulated Settlement Agreement in the case of *WildEarth Guardians v. Salazar*, in the United States District Court for the District of Columbia; and on July 12, 2011, the FWS entered into a Stipulated Settlement Agreement in the case of *Center for Biological Diversity v. Salazar*, also in the United States District Court for the District of Columbia. These agreements require FWS to make listing decisions on more than 250 species by certain dates, including listing decisions on more than 150 species by September 30, 2013. The ESA requires that concurrent critical habitat designations be made on those dates as well. *See* 16 U.S.C. §1533(a)(3)(A) and (b)(6)(C).

Commenters are concerned that EPA's inadequate BE became outdated as soon as it was printed and that the same will be true of any BiOps that the Services issue for EPA's proposed rule in the next few months. In light of the unprecedented, rapid and ongoing expansion of the number of listed species and their critical habitats, EPA and the Services must explain how they intend to review the impacts of EPA's proposed cooling water intake regulations on these species and critical habitats.

14. NMFS has additional responsibilities under the Marine Mammal Protection Act and the Essential Fish Habitat provisions of the Magnuson-Stevens Act.

NMFS' oversight responsibilities with respect to EPA's regulation of cooling water intakes are broader than the Section 7 consultation process. Under the Marine Mammal Protection Act (16 U.S.C. 1361 et seq.), NMFS is responsible for ensuring that marine mammals are not taken through EPA's action and that any impact on them from EPA's rule is negligible. The Biological Evaluation does not discuss marine mammals in a significant manner, although EPA does note generally that more than a dozen listed species of marine mammals may be

harmed through impingement (sea otters and pinnipeds), thermal discharge (manatees), and indirectly by cooling water intakes (all of the preceeding, plus whales). *See* BE at 32-33, 50-52.

EPA concluded that it lacks sufficient data to evaluate how marine mammals are affected by cooling water intakes. Without sufficient data, however, neither EPA nor NMFS can conclude that the impact on these species from regulated cooling water intakes is always negligible. The Biological Evaluation discusses circumstances in which cooling water intakes may have an important impact on marine mammals. For example, the Biological Evaluation recounts how many groups of West Indian Manatees have become dependent on power plant thermal discharges to provide overwintering habitat in areas outside their historic winter range. EPA writes that, "due to the high degree of seasonal exposure to the thermal plume of the power plants and threat of cold shock should the power plant go off-line suddenly, it was judged that the manatee would be susceptible to thermal and chemical alterations in their immediate environment." BE at 51.

The Commenters are concerned that this inadequate BE constitutes the sum total of EPA and NMFS's information gathering efforts under the MMPA. We ask that NMFS please clarify how the Biological Evaluation and the ESA Section 7 consultation process relate to NMFS' oversight responsibilities under the MMPA, and what other research and analysis activities NMFS is planning to complete in order to fulfill its MMPA duties.

Similarly, under Section 305 of the Magnuson-Stevens Fisheries Act and its implementing regulations, NMFS must "coordinate with and provide information to other Federal agencies to further the conservation and enhancement of essential fish habitat." 16 U.S.C. § 1855(b)(1)(D). Correspondingly, EPA must "consult with the Secretary with respect to any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken, by such agency that may adversely affect any essential fish habitat." *Id.* § 1855 (b)(2). EPA's regulation governs the continued operation of numerous cooling water intakes located in essential fish habitats. These intakes kill fish in and dramatically alter the ecosystems of these habitats.

Like the ESA, the Magnuson-Stevens Act also requires EPA and NMFS to "use the best scientific information available regarding the effects of the action on EFH and the measures that can be taken to avoid, minimize, or offset such effects." 50 C.F.R. § 600.920(d). And EPA is required to provide NMFS with a written assessment of the rule's effects on essential fish habitat. *See id.* §600.920(e)(1). But the Biological Evaluation includes barely any information or analysis related to the endangered species that it is supposed to focus on; it makes no mention at all of the hundreds of billions of other fish killed by cooling water intakes every year, including the many billions killed in essential fish habitats. EPA has not provided a written assessment of the impact that its rule will have on these habitats, on fish populations, or on regulated fisheries. EPA's Biological Evaluation is not even adequate to meet its original purpose of assessing impacts on listed species; it certainly cannot double as a written assessment of impacts to essential fish habitat.

Cooling water intakes have notorious and substantial adverse effects on commercial and recreational fisheries and essential fish habitat. To take just two examples, the Delaware Estuary in the vicinity of the Salem Nuclear Generating Station is designated essential fish habitat for sixteen species of fish.[71] The Salem Nuclear Generating Station withdraws billions of gallons of cooling water from this essential fish habitat every day, killing more than 800 million "age one equivalent" fish – i.e., billions of actual fish, eggs, and larvae – every year.[72] Similarly, the Hudson River is also designated as essential fish habitat for numerous species. In the 1990s and early 2000s, five power plants on the Hudson River (Indian Point, Bowline, Roseton, Lovett and Danskammer),[73] caused year-class reductions estimated to be as much as 79 percent, depending on fish species.[74] The generators' 2000 analysis of three of these plants predicted year-class reductions of up to 20 percent for striped bass, 25 percent for bay anchovy, and 43 percent for Atlantic tomcod, even without assuming 100 percent entrainment mortality.[75] New York State has concluded that these losses could seriously deplete any reserve or compensatory capacity needed to survive unfavorable environmental conditions.[76]

Because the intakes regulated under EPA's new rule have such substantial adverse effects, the only appropriate form of essential fish habitat consultation under the Magnuson-Stevens Act is expanded consultation. *See* 50 C.F.R. § 600.920(i). And this expanded consultation must be initiated at least 90 days prior to a final EPA decision on the proposed 316(b) rule. *See id.* §600.920(i)(4). NMFS makes textual and GIS descriptions of essential fish habitats widely available. As a starting point, EPA should have submitted to NMFS a list of all essential fish habitats overlapping regulated intakes and thus affected by this rule. Commenters are disappointed that EPA has not taken even this basic first step, yet somehow seeks to conclude its consultation with NMFS and issue a final rule shortly.

---

[71] U.S. Nuclear Regulatory Commission, Essential Fish Habitat Assessment for the Proposed License Renewal for the Salem Nuclear Generating Station and Hope Creek Generating Station 16-17 (2011), *available at* pbadupws.nrc.gov/docs/ML1103/ML110320664.pdf.

[72] Versar, *Technical Review and Evaluation of Thermal Effects Studies and Cooling Water Intake Structure Demonstration of Impact for the Salem Nuclear Generating Station* at § VI-4 (Revised Final Report) (1989) (reported on an "equivalent adult" basis). Thiry (30) million pounds of bay anchovy and weakfish are lost each year due to entrainment and impingement at Salem compared to 6.8 million pounds of yearly commercial landings between 1975-1980.

[73] The Lovett plant has since closed, Danskammer has announced closure in the near future.

[74] 67 Fed. Reg. at 17,138, citing John Boreman and Phillip Goodyear, *Estimates of Entrainment Mortality for Striped Bass and Other Fish Species Inhabiting the Hudson River Estuary*, American Fisheries Society Monograph 4:152-160, 1988

[75] *Id.*, citing Consolidated Edison Company of New York, Draft environmental impact statement for the state pollutant discharge elimination system permits for Bowline Point, Indian Point 2 & 3, and Roseton steam electric generating stations (2000).

[76] *Id.*

Please explain how, and on what timeline, NMFS and EPA intend to comply with their respective obligations under the Magnuson-Stevens Fishery Act and the Marine Mammal Protection Act.

15. Request for meeting

The Services' Section 7 consultation handbook states that the action agency and the Services should involve other interested parties in discussions related to the consultation, including to the development of reasonable and prudent alternatives to the proposed rule and reasonable and prudent measures to mitigate the impacts of incidental take. *See* Handbook at 4-7. Commenters respectfully request an opportunity to meet with the Services and EPA to discuss the issues raised in this letter and our concerns related to this consultation.

16. Conclusion

We hope that the data referred to in this letter and the attached documents are helpful to the Services in this consultation process. Despite the shortcomings of EPA's submission, it is arbitrary and capricious and not in accordance with the Endangered Species Act for the Services to issue or for EPA to rely on a BiOP that does not draw on the best available scientific and commercial data. *See, e.g., Conner v. Burford*, 848 F.2d 1441, 1454 (9th Cir. 1988). The attached information is just a small sample of the available data that Commenters were able to assemble on a short timeline and with limited resources. We hope that this submission assists the Services in delineating the large volume of available data that is far better than what EPA provided in its Biological Evaluation and supporting materials, and we also hope that the Services are able to establish a research process that collects and makes use of that information.

In the absence of better information about the status of hundreds of endangered species affected by intakes, however, the benefit of the doubt must be given to endangered species. "Congress has spoken in the plainest of words, making it abundantly clear that the balance has been struck in favor of affording endangered species the highest of priorities, thereby adopting a policy which it described as 'institutionalized caution.'" *Tennessee Valley Authority v. Hill,* 437 U.S. 153, 194 (1978).

Given the volume of information available about the lethal effects of cooling water systems on endangered species, the fact that EPA's rule will achieve, at best, only a modest reduction in impingement and little or no reduction in entrainment and thermal discharge, the significant risk that EPA's rule will in fact increase both entrainment and thermal discharge, and the lack of any data to suggest that populations of threatened and endangered species are recovering despite these impacts, it is difficult to see how the Services can avoid a finding of jeopardy if they insist on issuing a BiOp based on the presently available information. Alternatively, we believe that the Services must demand that EPA make a sincere effort to provide the Services with the best available data about the effects of its action and the listed species harmed by it.

We also hope to hear from you soon with regard to MMPA and Magnuson-Stevens Act compliance and our request to meet with the Services. Thank you for your consideration of these comments.

Sincerely,

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jpayne@cascobay.org

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Santa Monica, CA 90401
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liz@smbaykeeper.org

Marc Yaggi, Executive Director
Waterkeeper Alliance
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New York, NY 10004
(212) 747-0622 ext. 114
myaggi@waterkeeper.org

To: Kopocis, Ken[Kopocis.Ken@epa.gov]
From: Feldt, Lisa
Sent: Fri 12/6/2013 3:33:57 PM
Subject: 316B

Ken, are you available to give me a call. I am at EMC meeting but will step out. My cell is Non-Responsive
Lisaÿ

To: Kopocis, Ken[Kopocis.Ken@epa.gov]
From: Feldt, Lisa
Sent: Wed 12/4/2013 7:32:47 PM
Subject: Re: 316(b)

Yes

From: Kopocis, Ken
Sent: Wednesday, December 04, 2013 2:27:23 PM
To: Feldt, Lisa
Subject: Re: 316(b)

No. Currently at Commerce. Will you be at all-hands meeting?

From: Feldt, Lisa
Sent: Wednesday, December 04, 2013 1:21:08 PM
To: Kopocis, Ken
Subject: Re: 316(b)

Are you at SES meeting?

From: Kopocis, Ken
Sent: Wednesday, December 04, 2013 1:04:09 PM
To: Feldt, Lisa
Subject: 316(b)

Please give me a ring.

Ken

To: Southerland, Elizabeth[Southerland.Elizabeth@epa.gov]; Wood, Robert[Wood.Robert@epa.gov]
Cc: Kopocis, Ken[Kopocis.Ken@epa.gov]
From: Stoner, Nancy
Sent: Tue 12/3/2013 12:28:41 PM
Subject: Plan to talk to Bob P about 316(b) and ESA.

What intel do we have?ÿ

To: McLerran, Dennis[mclerran.dennis@epa.gov]; McCabe, Janet[McCabe.Janet@epa.gov]; Kopocis, Ken[Kopocis.Ken@epa.gov]; Beauvais, Joel[Beauvais.Joel@epa.gov]; Goffman, Joseph[Goffman.Joseph@epa.gov]
Cc: Walsh, Ed[Walsh.Ed@epa.gov]
From: Vaught, Laura
Sent: Wed 11/27/2013 2:19:13 PM
Subject: RE: meeting with Bob on Alaska

Thanks all. I spoke to Bob briefly yesterday, and I think that for today, he'll just want to go over the list of topics that the Senator's staff plans to raise, so that he has awareness, but I don't think he necessarily needs a deep dive today other than to know the basics.

Thanks again - I know this timing isn't ideal.

-----Original Message-----
From: McLerran, Dennis
Sent: Wednesday, November 27, 2013 9:14 AM
To: McCabe, Janet; Vaught, Laura; Kopocis, Ken; Beauvais, Joel; Goffman, Joseph
Cc: Walsh, Ed
Subject: Re: meeting with Bob on Alaska

Laura:
I will be on the call.
Dennis

From: McCabe, Janet
Sent: Wednesday, November 27, 2013 6:09:30 AM
To: Vaught, Laura; Kopocis, Ken; McLerran, Dennis; Beauvais, Joel; Goffman, Joseph
Cc: Walsh, Ed
Subject: RE: meeting with Bob on Alaska

Thanks, Laura....Joe is attending the prebrief this morning. I will dial in, but will be late. Joe's up on most of these issues except for Fairbanks PM I think.

From: Vaught, Laura
Sent: Tuesday, November 26, 2013 12:35 PM
To: Kopocis, Ken; McLerran, Dennis; McCabe, Janet; Beauvais, Joel; Goffman, Joseph
Cc: Walsh, Ed
Subject: RE: meeting with Bob on Alaska

Attached is the revised list that Murkowski's office just sent us for the meeting. Most of it is the same, but a couple of additions and deletions.

I think this will be largely listening session with some follow up likely.

Can we identify today, folks who can be on a pre-brief call with Bob tomorrow and also folks who can be at the meeting on Monday on each of these topics?

Thanks all!

-----Original Message-----
From: Kopocis, Ken
Sent: Tuesday, November 26, 2013 7:52 AM
To: Vaught, Laura; McLerran, Dennis; McCabe, Janet; Beauvais, Joel; Goffman, Joseph
Cc: Walsh, Ed

Subject: RE: meeting with Bob on Alaska

I will not be in the office on either Wednesday or Monday. I will see that informed people are available. I note that Denise Keehner no longer works here, so we will replace her, and that 316(b) is a water issue, not air. We did consider reliability and affordability issues in the rule.
Ken

-----Original Message-----
From: Vaught, Laura
Sent: Monday, November 25, 2013 2:13 PM
To: McLerran, Dennis; McCabe, Janet; Beauvais, Joel; Goffman, Joseph; Kopocis, Ken
Cc: Walsh, Ed
Subject: FW: meeting with Bob on Alaska

All - you may recall that last year, Bob P. sat down for a long meeting with Senator Murkowski's senior staff and many of you/Agency senior staff to talk about a host of issues on the Senator's agenda.

At his approps hearing earlier this year, Bob P. agreed to convene the same kind of meeting this year.

That meeting is now scheduled for next Monday afternoon with a pre-brief for Bob P. this Wednesday morning.

So...couple of things. Can you each take a look at the list of topics below and identify the right people (if different from those noted) to attend or call in to both meetings? And if there is paper on any of these that would be helpful for Bob in terms of pre-brief (or if he doesn t need it) that would be great. Probably the main thing that he will need is a list of the issues and a general sense of who will be covering and the general state of play on each.

The Senator's staff is really just looking to have a meaningful back and forth on some of these issues.

Dennis - not reflected below is the road issue you and I talked about in another context a few weeks ago. Staff indicated to me on Friday that they expect that may be a topic as well.

Janet/Joe - staff also mentioned that the recent NARUC meeting would probably come up in the context of the reliability conversation.

Ed - am I missing anything here?

-----Original Message-----
From: Walsh, Ed
Sent: Monday, November 25, 2013 1:46 PM
To: Vaught, Laura
Subject: meeting with Bob on Alaska

Laura

Here is the agenda and list of contacts from the issues back in July -- I also attached the back and forth between folks so you can get the flavor for the discussions back then.

Issues For Discussion

a. Recognition of Progress
   i. CISWI Rule - Small Remote Incinerators (JANET MCCABE, JOEL BEAUVAIS and JOE GOFFMAN)
   ii. Veterinary Clinics (JANET MCCABE, JOEL BEAUVAIS and JOE GOFFMAN)

b. Issues of Significant Ongoing Concern

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ii. Vessel Discharge Regulations --- DEBORAH NAGLE

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iv. Clean Water Act Section 404(c) Authority --- DENISE KEEHNER

v. Electric reliability and affordability, e.g.: (JANET MCCABE, JOEL BEAUVAIS and JOE GOFFMAN)

1. 316(b)
2. Coal ash
3. GHG NSPS - new and existing
4. MATS
5. Start Up, Shut Down and Malfunction

vi. Freight Carrier and Cruise Ship Emission Concerns -- ECA (JANET MCCABE, JOEL BEAUVAIS and JOE GOFFMAN)

Thanks

Thanks

Ed Walsh
Senior Policy Advisor and Liaison to Appropriations Committee Office of the Chief Financial Officer
USEPA
202-564-4594

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To: Kopocis, Ken[Kopocis.Ken@epa.gov]
Cc: Southerland, Elizabeth[Southerland.Elizabeth@epa.gov]; Wood, Robert[Wood.Robert@epa.gov]; Hewitt, Julie[Hewitt.Julie@epa.gov]
From: Skane, Elizabeth
Sent: Tue 11/26/2013 9:37:55 PM
Subject: RE: meeting with Bob on Alaska

Rob Wood and Julie Hewitt will cover for Betsy tomorrow. Is there a meeting on the calendar that they could be added to so they has all the up to date info on the meeting itself?

Rob and/or Julie and/or Betsy can cover Monday.

Thanks
Elizabeth for Betsy

Elizabeth Skane | Special Assistant | Office of Science & Technology / Office of Water / US EPA | 202.564.5696

-----Original Message-----
From: Kopocis, Ken
Sent: Tuesday, November 26, 2013 12:55 PM
To: Nagle, Deborah; Best-Wong, Benita; Southerland, Elizabeth
Cc: Stoner, Nancy; Sawyers, Andrew
Subject: Fw: meeting with Bob on Alaska

Please see the attached list of issues for Bob P and Senator Murkowski discussion and the e-mail chain explaining. This list has more water issues than the last one.

Deborah, hopefully you are available or can identify a replacement.
Benita and Betsy, I also need you to identify appropriate persons. Sufficiently senior, knowledgeable, and savvy.

I did this last year. It is mostly listen, and follow-up as needed.

Ken.

From: Vaught, Laura
Sent: Tuesday, November 26, 2013 12:35:16 PM
To: Kopocis, Ken; McLerran, Dennis; McCabe, Janet; Beauvais, Joel; Goffman, Joseph
Cc: Walsh, Ed
Subject: RE: meeting with Bob on Alaska

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Cc: Walsh, Ed
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Ed Walsh
Senior Policy Advisor and Liaison to Appropriations Committee Office of the Chief Financial Officer
USEPA
202-564-4594

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To: Vaught, Laura[Vaught.Laura@epa.gov]; Kopocis, Ken[Kopocis.Ken@epa.gov]; McLerran, Dennis[mclerran.dennis@epa.gov]; McCabe, Janet[McCabe.Janet@epa.gov]; Goffman, Joseph[Goffman.Joseph@epa.gov]
Cc: Walsh, Ed[Walsh.Ed@epa.gov]; Lubetsky, Jonathan[Lubetsky.Jonathan@epa.gov]
From: Beauvais, Joel
Sent: Tue 11/26/2013 6:27:50 PM
Subject: Re: meeting with Bob on Alaska

+ Jonathan

From: Vaught, Laura
Sent: Tuesday, November 26, 2013 12:35:16 PM
To: Kopocis, Ken; McLerran, Dennis; McCabe, Janet; Beauvais, Joel; Goffman, Joseph
Cc: Walsh, Ed
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Cc: Walsh, Ed
Subject: RE: meeting with Bob on Alaska

I will not be in the office on either Wednesday or Monday. I will see that informed people are available. I note that Denise Keehner no longer works here, so we will replace her, and that 316(b) is a water issue, not air. We did consider reliability and affordability issues in the rule.
Ken

-----Original Message-----
From: Vaught, Laura
Sent: Monday, November 25, 2013 2:13 PM
To: McLerran, Dennis; McCabe, Janet; Beauvais, Joel; Goffman, Joseph; Kopocis, Ken
Cc: Walsh, Ed
Subject: FW: meeting with Bob on Alaska

All - you may recall that last year, Bob P. sat down for a long meeting with Senator Murkowski's senior staff and many of you/Agency senior staff to talk about a host of issues on the Senator's agenda.

At his approps hearing earlier this year, Bob P. agreed to convene the same kind of meeting this year.

That meeting is now scheduled for next Monday afternoon with a pre-brief for Bob P. this Wednesday morning.

So...couple of things. Can you each take a look at the list of topics below and identify the right people (if

different from those noted) to attend or call in to both meetings? And if there is paper on any of these that would be helpful for Bob in terms of pre-brief (or if he doesn't need it) that would be great. Probably the main thing that he will need is a list of the issues and a general sense of who will be covering and the general state of play on each.

The Senator's staff is really just looking to have a meaningful back and forth on some of these issues.

Dennis - not reflected below is the road issue you and I talked about in another context a few weeks ago. Staff indicated to me on Friday that they expect that may be a topic as well.

Janet/Joe - staff also mentioned that the recent NARUC meeting would probably come up in the context of the reliability conversation.

Ed - am I missing anything here?

-----Original Message-----
From: Walsh, Ed
Sent: Monday, November 25, 2013 1:46 PM
To: Vaught, Laura
Subject: meeting with Bob on Alaska

Laura

Here is the agenda and list of contacts from the issues back in July -- I also attached the back and forth between folks so you can get the flavor for the discussions back then.

Issues For Discussion

a. Recognition of Progress
   i. CISWI Rule - Small Remote Incinerators (JANET MCCABE, JOEL BEAUVAIS and JOE GOFFMAN)
   ii. Veterinary Clinics (JANET MCCABE, JOEL BEAUVAIS and JOE GOFFMAN)

b. Issues of Significant Ongoing Concern
   i. Particulate Matter Regulation, e.g., Fairbanks 2.5(JANET MCCABE, JOEL BEAUVAIS and JOE GOFFMAN)
   ii. Vessel Discharge Regulations --- DEBORAH NAGLE
   iii. CISWI Rule - Small Remote Incinerators (JANET MCCABE, JOEL BEAUVAIS and JOE GOFFMAN)
   iv. Clean Water Act Section 404(c) Authority --- DENISE KEEHNER
   v. Electric reliability and affordability, e.g.: (JANET MCCABE, JOEL BEAUVAIS and JOE GOFFMAN)
      1. 316(b)
      2. Coal ash
      3. GHG NSPS - new and existing
      4. MATS
      5. Start Up, Shut Down and Malfunction
   vi. Freight Carrier and Cruise Ship Emission Concerns -- ECA (JANET MCCABE, JOEL BEAUVAIS and JOE GOFFMAN)

Thanks

Thanks

Ed Walsh

Senior Policy Advisor and Liaison to Appropriations Committee Office of the Chief Financial Officer
USEPA
202-564-4594

ÿ

To: Prather, Larry J HQ02[Larry.J.Prather@usace.army.mil]
From: Prather, Larry J HQ02
Sent: Mon 11/25/2013 9:54:16 PM
Subject: FW: [EXTERNAL] From Greenwire -- WATER: USGS to monitor consumption by power producers (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

An E&E Publishing Service

WATER: USGS to monitor consumption by power producers (Monday, November 25, 2013)

Annie Snider, E&E reporter

As water supplies tighten in key river basins, the U.S. Geological Survey is reinstituting its reporting on water consumption by coal, nuclear and other thermoelectric power plants.

While the sector accounts for more than 40 percent of all U.S. water withdrawals, the Government Accountability Office has criticized the federal government's work at the intersection of water and energy as too stovepiped (*Greenwire*, Oct. 16, 2012).

Partially in response to that criticism, USGS today released a report outlining how it will calculate consumption numbers for power plants with once-through cooling technology and closed-cycle systems. The agency stopped reporting on power plants' water consumption in 1995 due to budget constraints. The calculations will now be incorporated into the survey's five-year reports on water use and will be part of a national water census aimed at providing accurate, real-time data on freshwater supplies for thousands of watersheds nationwide.

Tim Diehl, a hydrologist for USGS and lead author of the report, said the amount of water consumed at thermoelectric power plants is much smaller than the amount withdrawn -- only about 3 percent of overall consumption, he estimates.

"That's a much smaller proportion of national water consumption, but it can be a much more important number locally," he said. "It's a huge concern in the Colorado River Basin."

The Union of Concerned Scientists and other environmental groups have been pressing for policy decisions about the country's energy future to consider the water footprint of different sources (*Greenwire*, July 16).

Significantly, the report lays out a method for calculating the amount of water that evaporates after a power plant with a once-through cooling system discharges warmer water back into a river. Diehl said the estimates for water

consumption reported by power plants can vary widely, and the estimates for downstream evaporation have been particularly suspect.

"The guy at the plant has no way to measure that evaporation," Diehl said. "So the measurements that are reported for plants with once-through cooling have to be guesses."

The report also comes as U.S. EPA is poised to finalize a long-awaited national rule on cooling water intake structures that could affect the type of cooling system that older plants use (*Greenwire*, Nov. 14).

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About Greenwire

Greenwire is written and produced by the staff of E&E Publishing, LLC. The one-stop source for those who need to stay on top of all of today's major energy and environmental action with an average of more than 20 stories a day, Greenwire covers the complete spectrum, from electricity industry restructuring to Clean Air Act litigation to public lands management. Greenwire publishes daily at 1 p.m.

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Phone: 202-628-6500. Fax: 202-737-5299.
www.eenews.net

Classification: UNCLASSIFIED
Caveats: NONE

To: Vaught, Laura[Vaught.Laura@epa.gov]
Cc: Distefano, Nichole[DiStefano.Nichole@epa.gov]
Sent: Tue 11/19/2013 7:23:13 PM
Subject: Document3
Doc3.docx

Here is what I came up with.

I am a bit nervous about "reflecting a local resource examination" because I suspect it could be code for somewhere we don't want to go.

I have calls into OP and OST to hear their thoughts, but have not heard back.

Ken

To: Kopocis, Ken[Kopocis.Ken@epa.gov]
From: Stoner, Nancy
Sent: Fri 11/8/2013 11:53:03 PM
Subject: Fw: Association of Clean Water Administrators Weekly Wrap Vol IV. Issue 42 (Week of Nov. 4, 2013)

Reference to association ltr here -- I can't open on bb. Have you seen a state letter?

From: Kirsch, Susan <skirsch@acwa-us.org>
Sent: Friday, November 08, 2013 6:11:57 PM
To: Stoner, Nancy
Subject: Association of Clean Water Administrators Weekly Wrap Vol IV. Issue 42 (Week of Nov. 4, 2013)

All:

This Week's Wrap is accessible here*:

http://image.exct.net/lib/fe65157076600279701 7/m/1/ACWA_Weekly_Wrap_Vol+4_Issue+42_FINAL.pdf

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In this issue . . .

- Joint Association Letter on Connectivity Study

- Farewell to ACWA Member Todd Chenoweth

- Co-Regulator Water Quality Standards Rule Workshop

- Final Civil Penalties Rule Issued

- 316(b) Final Rule Postponed

- Value of Water Report

- National Academy of Sciences meets on Drought

- TMDL Vision Implementation State Calls planned . .

-ATTAINS Workgroup calls

This week's Wrap will be posted to the web early next week on ACWA's website - where you can currently find the last five issues and an archive of the issues from 2012 to present.

What is the Wrap? The Weekly Wrap is a one page road map of the past week's events and upcoming activities. The Wrap reminds our membership of important deadlines and may highlight information distributed by the Association. Please direct any Wrap comments to Susan Kirsch at skirsch@acwa-us.org.

Enjoy your weekend!

The ACWA Staff

To: Kopocis, Ken[Kopocis.Ken@epa.gov]
From: Garbow, Avi
Sent: Wed 11/6/2013 5:14:35 PM
Subject: RE: 316(b) Schedule

Sure. How about aiming for talk at 4?

Avi Garbow

General Counsel

U.S. Environmental Protection Agency

(202) 564-1917 Cell (202) 674-1804

From: Kopocis, Ken
Sent: Wednesday, November 06, 2013 8:39 AM
To: Garbow, Avi
Subject: 316(b) Schedule

Avi, do you have a minute to discuss the schedule?

Thanks,

Ken

To: Kopocis, Ken[Kopocis.Ken@epa.gov]
From: Stoner, Nancy
Sent: Tue 11/5/2013 6:38:43 PM
Subject: RE: Where are we on 316(b) schedule?

Thanks. Betsy wants to know (not surprisingly)

-----Original Message-----
From: Kopocis, Ken
Sent: Tuesday, November 05, 2013 1:23 PM
To: Stoner, Nancy
Subject: RE: Where are we on 316(b) schedule?

I have not talked again with either Avi or Administrator.
I will reach out.

-----Original Message-----
From: Stoner, Nancy
Sent: Tuesday, November 05, 2013 11:05 AM
To: Kopocis, Ken
Subject: Where are we on 316(b) schedule?

Ex. 5 - Deliberative

To: Kopocis, Ken[Kopocis.Ken@epa.gov]
From: Stoner, Nancy
Sent: Tue 11/5/2013 4:04:48 PM
Subject: Where are we on 316(b) schedule?

Ex. 5 - Deliberative

To: Stoner, Nancy[Stoner.Nancy@epa.gov]
From: Kirsch, Susan
Sent: Fri 5/23/2014 9:55:26 PM
Subject: Association of Clean Water Administrators Weekly Wrap, Vol V Issue 19 (Week of May 19, 2014)

All:

This Week's Wrap is accessible here*:

http://image.exct.net/lib/fe651570766002797017/m/1/ACWA_Weekly_Wrap_Vol+V_Issue19_FINAl.pdf

**Please try refreshing your browser if you encounter font formatting issues that make the above-linked PDF difficult to view when first opened. Please notify us if this fails to correct the problem.*

In this issue . . .

- ACWA Annual Meeting 2014: preliminary agenda and lodging now available!

- WoUS Proposed Rule State Outreach: Save the date for series of June 2014 EPA/State calls . .

- ACWA bids farewell to Steve Gunderson

- EPA signs Final Cooling Water Intake Structure (316(b)) Rule

- House and Senate Approve WRRDA Conference Report

- National Network on Water Quality Trading Meeting

- ELI Panel Discussion on New E-Enterprise for the Environment

- EPA Ag Center Quarterly Call

- eReporting Rule Technical Workgroup discussions continue . . .

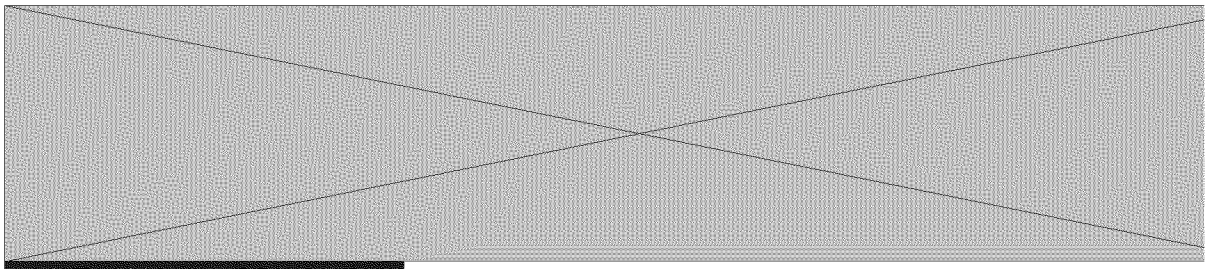
This week's Wrap will be posted to the web early next week on ACWA's website - where you can currently find the last five issues and an archive of the issues from 2013 to present.

What is the Wrap? The Weekly Wrap is a one page road map of the past week's events and upcoming activities. The Wrap reminds our membership of important deadlines and may highlight information distributed by the Association. Please direct any Wrap comments to Susan Kirsch at skirsch@acwa-us.org.

Have a safe and happy holiday weekend,

The ACWA Staff

To: Stoner, Nancy[Stoner.Nancy@epa.gov]
From: EPA Office of Water
Sent: Tue 5/20/2014 9:56:33 PM
Subject: Water Headlines from EPA



A Weekly Newsletter from the Office of Water at the U.S. Environmental Protection Agency

May 20, 2014

Visit our website

Press Releases

EPA Reaches Agreement with CEMEX to Protect Water Quality in Puerto Rico

see more

To: Stoner, Nancy[Stoner.Nancy@epa.gov]; Kopocis, Ken[Kopocis.Ken@epa.gov]; Gilinsky, Ellen[Gilinsky.Ellen@epa.gov]; Shapiro, Mike[Shapiro.Mike@epa.gov]
From: Southerland, Elizabeth
Sent: Tue 5/20/2014 8:30:59 PM
Subject: Fw: fyi - FW: May 20 -- BNA, Inc. Daily Environment Report - Latest Developments

We haven't had a chance to talk to Reed yet about the rule....

From: Skane, Elizabeth
Sent: Tuesday, May 20, 2014 4:15:45 PM
To: Southerland, Elizabeth; Wood, Robert; Hewitt, Julie
Cc: Zipf, Lynn
Subject: fyi - FW: May 20 -- BNA, Inc. Daily Environment Report - Latest Developments

Groups Plan to Sue EPA Over Final Cooling Water Intake Rule

Posted May 20, 2014, 11:38 A.M. ET

Environmental groups plan to sue the Environmental Protection Agency over a final rule governing the installation of best available technology at power plant cooling water intake structures, industrial plants and manufacturing facilities, an attorney representing the groups said May 20.

"Subject to reviewing the rule and internal discussions, there is a very strong likelihood we will be back in court, because the rule doesn't come close to what the Clean Water Act requires," Reed Super, an attorney with Super Law Group LLC, told reporters May 20 during a teleconference.

The firm represented Riverkeeper, the Waterkeeper Alliance, the Sierra Club and the Natural Resources Defense Council in compelling the EPA to issue cooling water intake rules under Section 316(b) of the Clean Water Act at existing power plants.

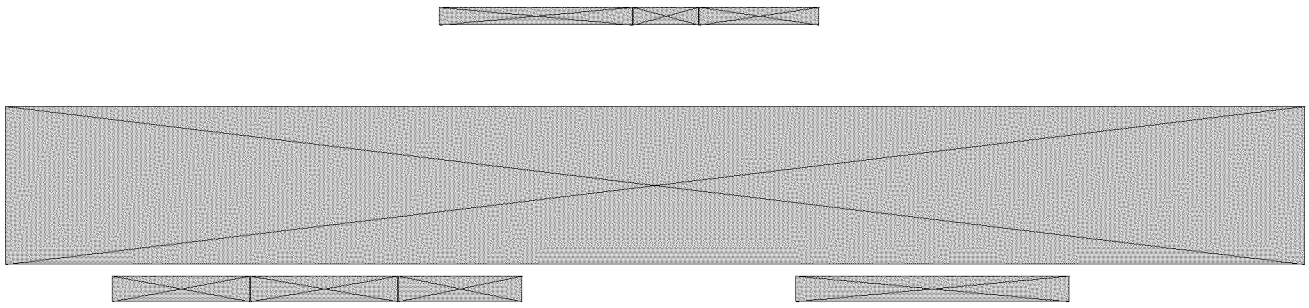
Super said the final cooling water intake rule, which the EPA issued May 19, makes states responsible for determining what technology industry should use to avoid entrainment or injury to fish eggs and shellfish caused by drawing water into cooling water intake structures.

The final rule won't mandate the closed-loop systems sought by environmental groups.

Elizabeth Skane | Special Assistant / Regulatory Manager

Office of Science & Technology / Office of Water / US EPA | 202.564.5696

From: BNA Highlights [mailto:bhighlig@bna.com]
Sent: Tuesday, May 20, 2014 4:11 PM
To: Skane, Elizabeth
Subject: May 20 -- BNA, Inc. Daily Environment Report - Latest Developments



Latest Developments -- Your Preview of the Day's News

The following news provides a snapshot of what Bloomberg BNA is working on today. Read the full version of all the stories in the final issue, published each night.

House Votes 412-4 to Approve Compromise on Water Legislation

Posted May 20, 2014, 2:46 P.M. ET

The House agreed to the conference report on the Water Resources Reform and Development Act (H.R. 3080) on a 412-4 vote May 20.

The bill would authorize projects of the U.S. Army Corps of Engineers important to commerce and flood safety nationwide. The conference report, blending the House and Senate versions of the legislation, is expected to face a vote in the Senate May 21 or May 22.

Members of the House from both parties were lavish with praise for the conference report and for what was repeatedly called bipartisan work.

The legislation would authorize projects to widen and deepen ports and coastal navigation panels, improve and replace locks, dams and levees on inland waterways, enhance dam safety, engage in ecosystem restoration projects especially in wetlands and enhance storm protective measures such as barrier sand dunes.

To speed up project studies and environmental reviews, the legislation would require more coordination and setting of deadlines among federal agencies. Even congressional critics of the environmental review streamlining spoke in favor of the conference report during floor debate May 20.

Groups Plan to Sue EPA Over Final Cooling Water Intake Rule

Posted May 20, 2014, 11:38 A.M. ET

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Super said the final cooling water intake rule, which the EPA issued May 19, makes states responsible for determining what technology industry should use to avoid entrainment or injury to fish eggs and shellfish caused by drawing water into cooling water intake structures.

The final rule won't mandate the closed-loop systems sought by environmental groups.

Delay Set for Private Oil, Gas Development in Wildlife Refuge

Posted May 20, 2014, 3:54 P.M. ET

The U.S. Fish and Wildlife Service is delaying proposed regulations for the private development of oil and natural gas within the National Wildlife Refuge System opposed by House Republicans and the oil and gas industry.

Steve Guertin, assistant director of the Fish and Wildlife Service, testified the agency is re-opening a 30-day comment period on the rules "based on the volume of comments" the agency has received.

An advance notice of proposed rulemaking by the agency was approved by the White House Office of Management and Budget in February but was never formally issued.

Specifics of the proposal have yet to be released, but Guertin testified before a House Natural Resources subcommittee it would include best practices for access, development and concluding development within the 150-million-acre refuge system, which includes over 5,000 oil and gas wells.

Defer to States in Power Plant Rule, Oklahoma Attorney General Says

Posted May 20, 2014, 3:40 P.M. ET

The Environmental Protection Agency should recognize the primacy of states to establish achievable emissions standards for existing power plants when it proposes carbon dioxide standards in June, Oklahoma Attorney General Scott Pruitt said.

States should have the authority to set less stringent carbon dioxide emissions standards than mandated by the EPA in order to ensure cost-effective and reliable electricity generation, as provided by the Clean Air Act, Pruitt said during a May 20 forum sponsored by the Federalist Society. Section 111(d) of the Clean Air Act gives states significant authority to determine how best to implement the carbon dioxide emissions guidelines the EPA will propose.

"It maintains primacy of the states," Pruitt said. "I reject, in fact, I find it offensive, that regulators in Washington believe regulators in states aren't interested in air we breathe and water we drink in places we call home."

The proposed rule should only mandate emissions reductions that can be achieved at the power plant itself and should not require investments in demand-reduction programs or new renewable electricity generation, Pruitt said in a recent report.

President Barack Obama is expected to announce the proposed rule June 2.

EPA Official Says Better Understanding of Methane Studies Needed

Posted May 20, 2014, 3:26 P.M. ET

The Environmental Protection Agency needs a better understanding of "top-down" data on methane emissions from the oil and natural gas industry before the agency can determine whether it needs to alter its estimates of national methane emissions, according to an agency official.

Paul Gunning, director of the Climate Change Division in the EPA's Office of Air and Radiation, said May 20 that the agency faces a "significant challenge" in assessing how external studies measuring methane emissions can be factored into the agency's greenhouse gas inventory estimates.

Gunning, speaking during an Environmental Law Institute webinar, said it is "too early" to make any kind of conclusion on whether the EPA's estimates need to be changed based off of data from the top-down studies, which include measurements taken from satellites and aircraft.

Francis O'Sullivan, director of Research and Analysis at the Massachusetts Institute of Technology's Energy Initiative, said national and regional studies suggest that a "good deal" more methane is being emitted than reported in the EPA's annual greenhouse gas inventory, possibly up to 50 percent higher. He said it is "clear" that there is an excess amount of methane being emitted, but noted that additional studies are needed to determine the sources of the excess.

President's Nominee to Lead FERC Defends Aggressive Enforcement

Posted May 20, 2014, 12:53 P.M. ET

Norman C. Bay, the president's nominee to chair the Federal Energy Regulatory Commission, staunchly defended his decisions as the commission's chief market enforcement officer, noting that every settlement reached on his watch has been approved by the full commission.

Bay told the Senate Energy and Natural Resources Committee that while he has been director of FERC's Office of Enforcement since 2009, the commission has issued 49 market settlement orders, with 48 being reached by bipartisan, unanimous vote.

"Every market manipulation settlement has been issued by unanimous vote," Bay said at his nomination hearing. "These settlements have helped protect customers, ensure the integrity of the markets and provide a level playing field for all market participants."

Republican senators expressed concern with Bay's nomination to the commission, citing his lack of experience in utility regulation and the mounting opposition from energy trading companies that have been the subject of commission market enforcement investigations.

In contrast to Bay's nomination, Acting Chairwoman Cheryl LaFleur received bipartisan praise today in her bid for a second term on the commission.

New York Attorney General Proposes Utility Climate Change Bill

Posted May 20, 2014, 11:33 A.M. ET

New York Attorney General Eric Schneiderman (D) proposed legislation May 19 to require New York's electric and gas utilities to assess their vulnerability to climate change and prepare plans for adapting to severe weather.

Schneiderman said the proposed legislation would build on a February decision by the state Public Service Commission to require all New York utilities to integrate the potential impacts of climate change into their system planning and construction

forecasts and budgets. The Public Service Commission also approved a plan by Consolidated Edison to spend $1 billion over the next four years for storm hardening and resiliency projects.

Schneiderman said his proposed bill would require gas and electric utilities to assess the probable impacts of climate change on their infrastructure, operations and service delivery operations. They would be required to submit a climate change impact statement to the Public Service Commission.

In addition, the companies would have to create a plan for addressing the risks through changes in their operations, planning, infrastructure design and emergency preparations.

To: Stoner, Nancy[Stoner.Nancy@epa.gov]; Shapiro, Mike[Shapiro.Mike@epa.gov]
From: Enck, Judith
Sent: Tue 5/20/2014 6:28:00 PM
Subject: Fw: Enviro lawsuit likely over 'largely worthless' cooling water rule

Fyi

From: Soltani, Beth
Sent: Tuesday, May 20, 2014 6:18:23 PM
To: Enck, Judith
Subject: Enviro lawsuit likely over 'largely worthless' cooling water rule

4. UTILITIES:

Enviro lawsuit likely over 'largely worthless' cooling water rule

Annie Snider, E&E reporter

Published: Tuesday, May 20, 2014

Environmental groups are strongly considering taking U.S. EPA back to court over a final cooling water rule the agency released yesterday that greens contend will do little to protect the billions of fish, larvae and other species vacuumed into power plants and factories each year.

"We will have to review it and discuss it, but I think there is a very strong likelihood that we will be back in court to challenge the rule," Reed Super, the attorney representing Waterkeeper Alliance and other environmental groups, said on a call with reporters this morning. "It doesn't come close to what we believe the Clean Water Act requires."

The regulation is aimed at reducing the number of aquatic organisms that get sucked into cooling water intakes and killed by being pinned against screens -- called "impingement" -- or boiled in extremely hot water -- called "entrainment." It applies to facilities that withdraw at least 2 million gallons of water per day. EPA estimates that's about 1,065 facilities, 544 of which are power plants.

The electric utility industry, which is facing a suite of new and looming environmental regulations from U.S. EPA, lobbied hard on the regulation, contending that it had the potential to make plants, particularly nuclear plants, uneconomical; create grid reliability issues; and threaten the administration's climate goals.

The rule released yesterday would require covered plants to pick from one of seven options for reducing impingement -- an increase in flexibility over the proposed rule, which would have given facilities two options for meeting the requirement.

The entrainment provisions, which environmental groups are most focused on, would apply only to facilities that withdraw very large amounts of water -- 125 million gallons or more per day. Under the rule, plants will have to conduct studies to help their permitting authority determine what types of technologies to reduce impacts would make sense for the plant. Ultimately, the decisions would be site-specific and made by the local permitting agency.

Greens say this amounts to essentially the status quo and that local permitting agencies don't have the wherewithal to set the necessary requirements.

"EPA also acknowledges that these losses 'have immediate and direct effects on the population size and age

distribution of affected species and may cascade through the food web,'" said Steve Fleischli, director of the Natural Resources Defense Council's water program. "Despite these known impacts, EPA has promulgated a largely worthless rule that will do almost nothing to protect our waterways and our fisheries from power plants."

Environmentalists were particularly flabbergasted by a provision in the rule that they say would allow states to give facilities credit for reductions in impacts that happened because of plant retirements as much as 10 years ago.

Industry groups said yesterday that they are still reading the rule but welcomed the approach EPA had taken in crafting it.

"The electric power industry has worked for years to educate and inform policymakers of the potential impacts of this regulation on customers and the need for a flexible and cost-effective final rule," Electric Edison Institute President Tom Kuhn said in a statement. "Based upon our initial review of the rule, we are pleased that EPA has avoided imposing a categorical one-size-fits-all approach to compliance; has embraced significant elements of flexibility; and has acknowledged the importance of weighing costs with environmental protection."

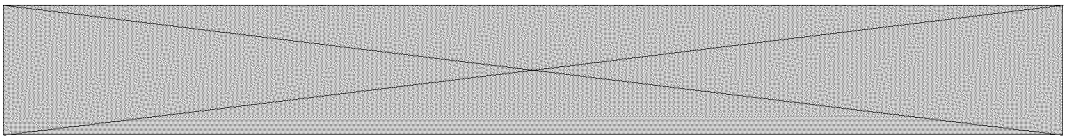
One of the areas of greatest concern to industry was whether upgrades of existing plants would trigger the requirement already on the books for new facilities to install closed-cycle cooling. In White House meetings as the rule was undergoing final review, industry representatives argued that such a requirement would disincentivize upgrades that would bring an environmental benefit and could cause reliability problems (*Greenwire*, Feb. 11).

The final rule released yesterday would not require new units at existing facilities to install closed-cycle cooling, but instead would allow the operator to reduce intake flow to a commensurate level with what closed-cycle cooling would use or to demonstrate that it has sufficiently reduced entrainment.

The timeline for implementing the new requirements is not clear. Facilities are given up to 39 months -- more than three years -- to complete the studies required under the rule. State permitting agencies are then given time to review them, set new requirements, and develop a timeline for installation.

"EPA recognizes that it will take facilities time to upgrade existing technologies, and install new technologies, and that there are limits on the number of facilities that can be simultaneously offline to install control technology and still supply goods and services to orderly, functioning markets," the agency said in the rule. "It is appropriate for the Director to take this into account when establishing a deadline for compliance."

To: Stoner, Nancy[Stoner.Nancy@epa.gov]
From: E&E Publishing
Sent: Tue 5/20/2014 5:20:51 PM
Subject: May 20 -- Greenwire is ready



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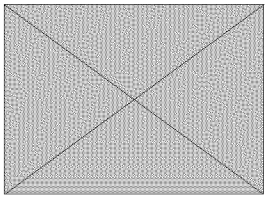

Greenwire -- Tue., May 20, 2014 -- Read the full edition

1. PUBLIC LANDS: Feds sell land to highest bidder, snubbing state park and earning local enemies

In spring, schoolchildren come to Crown Memorial State Beach armed with nets and wearing boots up to their hips so they can sift through the mud flats and eelgrass of an inlet known as Crab Cove. The California state park is popular among locals for its marine reserve and 2.5 miles of beach on San Francisco Bay. But soon, visitors will share the view with a housing development, after the General Services Administration denied attempts by local officials to buy adjacent federal property for more parkland.

Top Stories

2. ENDANGERED SPECIES: White House reviewing hot-button policy shift for listings

3. CLIMATE: Reported 25% GHG cut from power plant rule not enough -- enviros

4. UTILITIES: Enviro lawsuit likely over 'largely worthless' cooling water rule

Congress

5. FERC: Obama nominee faces tough questions from GOP senators

6. ARMY CORPS: Budget office estimates WRRDA to cost $12.3B over a decade

7. APPROPRIATIONS: House subpanel advances agriculture spending bill

8. RAIL: Approps bill aims at Calif. bullet train, urges final safety standards

Politics

9. CLIMATE: Lower consumption isn't the answer to cutting GHGs -- Lisa Jackson

10. CLIMATE: Action on warming likely in short term, some Republicans say

11. CAMPAIGN 2014: Chemistry Council boosts Cantor ahead of primary bout

12. COAL: Mining group rolls out ads in key states ahead of EPA climate rule

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14. BEACHES: Spain's 16th-century conquest reshaped Peru's coast -- study

15. WILDFIRE: Broad roster of fire detectives team up for San Diego arson task force

16. WILDLIFE: Smithsonian researcher finds snake species lost for 80 years

17. WILDLIFE: Phoenix Zoo becomes dumping ground for pet turtles

Law

Energy

Business

Air and Water

Transportation

Chemicals

Wastes & Hazardous Substances

28. SOLID WASTE: Washington, D.C., may have thrown out -- not recycled -- old trash cans

States

29. MINNESOTA: State is first to ban antibacterial chemical found in soaps, deodorant

30. WASHINGTON: Workers clearing landslide debris walk off job over safety concerns

31. WYOMING: State forester first to die on the job

32. NORTH CAROLINA: Tanker spills 3,000 gallons of sewage at rush hour

International

33. SOUTH AFRICA: Elephant park accused of shocking, hitting animals

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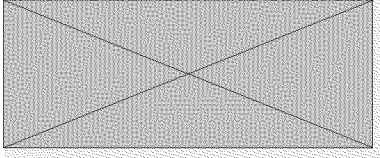
About Greenwire

Greenwire is written and produced by the staff of E&E Publishing, LLC. The one-stop source for those who need to stay on top of all of today's major energy and environmental action with an average of more than 20 stories a day, Greenwire covers the complete spectrum, from electricity industry restructuring to Clean Air Act litigation to public lands management. Greenwire publishes daily at 1 p.m.



5299.
www.eenews.net

To: Stoner, Nancy[Stoner.Nancy@epa.gov]; Kopocis, Ken[Kopocis.Ken@epa.gov]; Southerland, Elizabeth[Southerland.Elizabeth@epa.gov]; Wood, Robert[Wood.Robert@epa.gov]; Lalley, Cara[Lalley.Cara@epa.gov]
From: Loop, Travis
Sent: Tue 5/20/2014 3:01:05 PM
Subject: 316b coverage

EE News: EPA finalizes standard for cooling water at power plants
http://www.eenews.net/greenwire/stories/1059999841

Bloomberg: EPA Rule on Fish Kills at Plants Angers Environmentalists
http://www.bloomberg.com/news/2014-05-20/epa-rule-on-fish-kills-at-plants-angers-environmentalists.html

AP (via Atlanta Journal-Constitution): EPA reducing fish kills at power plants, factories
http://www.ajc.com/ap/ap/top-news/epa-reducing-fish-kills-at-power-plants-factories/nfzXC/

WSJ: EPA Issues Rules to Protect Fish in Plant Cooling Systems:Agency Stops Short of Requiring Less Water Use
http://online.wsj.com/news/articles/SB10001424052702304422704579572492594329888

Inside EPA: EPA Completes Cooling Water Rule But Faces Challenges From All Sides
http://insideepa.com/201405192471363/EPA-Daily-News/Daily-News/epa-completes-cooling-water-rule-but-faces-challenges-from-all-sides/menu-id-95.html

Law360: EPA Cooling Water Rule Requires New Fish Protections
http://www.law360.com/environmental/articles/538656/epa-cooling-water-rule-requires-new-fish-protections

The Hill: EPA sets standards for cooling water intakes
http://thehill.com/policy/energy-environment/206552-epa-sets-standards-for-cooling-water-intakes

POWER mag: EPA Issues Final Cooling Water Intake 316(b) Rule
http://www.powermag.com/epa-issued-final-cooling-water-intake-316b-rules/

Travis Loop
Director of Communications
Office of Water
U.S. Environmental Protection Agency
202-870-6922

To: Stoner, Nancy[Stoner.Nancy@epa.gov]; Kopocis, Ken[Kopocis.Ken@epa.gov]; Lalley, Cara[Lalley.Cara@epa.gov]; Wood, Robert[Wood.Robert@epa.gov]; Highsmith, Damon[Highsmith.Damon@epa.gov]; Southerland, Elizabeth[Southerland.Elizabeth@epa.gov]; Zipf, Lynn[Zipf.Lynn@epa.gov]
From: Senn, John
Sent: Tue 5/20/2014 2:31:37 PM
Subject: Fw: 316(b) clips

From: Ortiz, Julia
Sent: Tuesday, May 20, 2014 10:23:07 AM
To: Senn, John; Loop, Travis; Lalley, Cara
Subject: FW: 316(b) clips

FYI, just sent this to Monica – a small sample, but a good mix of headlines.

From: Ortiz, Julia
Sent: Tuesday, May 20, 2014 10:21 AM
To: Lee, Monica
Subject: RE: 316(b) clips

I just tried to round up everyone we talked to yesterday, and any larger outlets in the google results. Vocus was not really very helpful.

EE News – initially misreported, final version corrected:

EPA finalizes standard for cooling water at power plants

http://www.eenews.net/greenwire/stories/1059999841

Bloomberg:

EPA Rule on Fish Kills at Plants Angers Environmentalists

http://www.bloomberg.com/news/2014-05-20/epa-rule-on-fish-kills-at-plants-angers-environmentalists.html

WSJ:

EPA Issues Rules to Protect Fish in Plant Cooling Systems: Agency Stops Short of Requiring Less Water Use

http://online.wsj.com/news/articles/SB10001424052702304422704579572492594329888

Law360:

EPA Cooling Water Rule Requires New Fish Protections

http://www.law360.com/environmental/articles/538656/epa-cooling-water-rule-requires-new-fish-protections

AP, via Atlanta Journal-Constitution:

EPA reducing fish kills at power plants, factories

http://www.ajc.com/ap/ap/top-news/epa-reducing-fish-kills-at-power-plants-factories/nfzXC/

The Hill:

EPA sets standards for cooling water intakes

http://thehill.com/policy/energy-environment/206552-epa-sets-standards-for-cooling-water-intakes

POWER mag

EPA Issues Final Cooling Water Intake 316(b) Rule

http://www.powermag.com/epa-issued-final-cooling-water-intake-316b-rules/

Inside EPA

EPA Completes Cooling Water Rule But Faces Challenges From All Sides

http://insideepa.com/201405192471363/EPA-Daily-News/Daily-News/epa-completes-cooling-water-rule-but-faces-challenges-from-all-sides/menu-id-95.html

From: Lee, Monica
Sent: Monday, May 19, 2014 5:33 PM
To: Ortiz, Julia
Subject: 316(b) clips

Hey there – could we work together to get together a clips compilation on 316(b)? Something for before 11AM or so tomorrow morning?

Let me know if you think you have the bandwidth.

Thanks!

Monica Lee

Deputy Press Secretary

Office of the Administrator

Environmental Protection Agency

Direct: 202-564-0645

Cell: 202-713-6902

lee.monica@epa.gov

To: Belknap, Andra[Belknap.Andra@epa.gov]; Bloomgren, David[Bloomgren.David@epa.gov]; Bond, Brian[Bond.Brian@epa.gov]; Deputy Administrator[62Perciasepe.Bob73@epa.gov]; Distefano, Nichole[DiStefano.Nichole@epa.gov]; Feldt, Lisa[Feldt.Lisa@epa.gov]; Fritz, Matthew[Fritz.Matthew@epa.gov]; Ganesan, Arvin[Ganesan.Arvin@epa.gov]; Garbow, Avi[Garbow.Avi@epa.gov]; KeyesFleming, Gwendolyn[KeyesFleming.Gwendolyn@epa.gov]; Owens, Stephanie[Owens.Stephanie@epa.gov]; Reynolds, Thomas[Reynolds.Thomas@epa.gov]; Rupp, Mark[Rupp.Mark@epa.gov]; Vaught, Laura[Vaught.Laura@epa.gov]; Wachter, Eric[Wachter.Eric@epa.gov]; Kime, Robin[Kime.Robin@epa.gov]; Stoner, Nancy[Stoner.Nancy@epa.gov]; Kopocis, Ken[Kopocis.Ken@epa.gov]; Hoag, Paula[Hoag.Paula@epa.gov]; Shapiro, Mike[Shapiro.Mike@epa.gov]; Lousberg, Macara[Lousberg.Macara@epa.gov]; Beauvais, Joel[Beauvais.Joel@epa.gov]
Cc: Loop, Travis[Loop.Travis@epa.gov]; Evalenko, Sandy[Evalenko.Sandy@epa.gov]; Sanelli, Diane[Sanelli.Diane@epa.gov]; Muellerleile, Caryn[Muellerleile.Caryn@epa.gov]; Adams, Darryl[Adams.Darryl@epa.gov]; Balserak, Paul[Balserak.Paul@epa.gov]; Beauvais, Joel[Beauvais.Joel@epa.gov]; Barron, Alex[Barron.Alex@epa.gov]; Brown, Stephanie N.[Brown.StephanieN@epa.gov]; Free, Laura[Free.Laura@epa.gov]; Fried, Hannah[Fried.Hannah@epa.gov]; Geller, Michael[Geller.Michael@epa.gov]; Ingram, Amir[Ingram.Amir@epa.gov]; Jutras, Nathaniel[Jutras.Nathaniel@epa.gov]; Kenny, Shannon[Kenny.Shannon@epa.gov]; Kime, Robin[Kime.Robin@epa.gov]; Owens, Nicole[Owens.Nicole@epa.gov]; Pritchard, Eileen[Pritchard.Eileen@epa.gov]; Rogers, Faith[Rogers.Faith@epa.gov]; Schillo, Bruce[Schillo.Bruce@epa.gov]; Singelis, Nikos[Singelis.Nikos@epa.gov]; Smith, Kelley[Smith.Kelley@epa.gov]; Senn, John[Senn.John@epa.gov]; Southerland, Elizabeth[Southerland.Elizabeth@epa.gov]; Skane, Elizabeth[Skane.Elizabeth@epa.gov]; Zipf, Lynn[Zipf.Lynn@epa.gov]; Wood, Robert[Wood.Robert@epa.gov]; Highsmith, Damon[Highsmith.Damon@epa.gov]; Gude, Karen[Gude.Karen@epa.gov]; Hambrick, Amy[Hambrick.Amy@epa.gov]
From: Tarquinio, Ellen
Sent: Mon 5/19/2014 8:11:24 PM
Subject: SIGNED: National Pollutant Discharge Elimination System- Final Regulations to Establish Requirements for Cooling Water Intake Structures at Existing Facilities and Amend Requirements at Phase I Facilities (SAN 5210)
Signature Page 316b Final Rule.pdf

The final rule titled "National Pollutant Discharge Elimination System - Final Regulations to Establish Requirements for Cooling Water Intake Structures at Existing Facilities and Amend Requirements at Phase I Facilities" (SAN 5210) was signed today. The signature page is attached.

Ellen Tarquinio

Special Assistant

Office of the Administrator

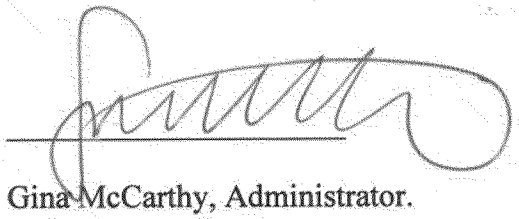
WJC North 3313

202-566-2267

40 CFR Part 125

Environmental protection, Cooling water intake structure, Reporting and recordkeeping requirements, Waste treatment and disposal, Water pollution control.

Dated: 5/19/14



Gina McCarthy, Administrator.

For reasons set out in the preamble, Chapter I of Title 40 of the Code of Federal Regulations is amended as follows:

PART 122--EPA ADMINISTERED PERMIT PROGRAMS: THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

1. The authority citation for part 122 continues to read as follows:

AUTHORITY: The Clean Water Act, 33 U.S.C. 1251 *et seq*.

2. The suspension of 40 CFR 122.21(r)(1)(ii) and (r)(5), published on July 9, 2007 (72 FR 37109) is lifted.

3. Section 122.21 is amended as follows:

a. Revising paragraph (r)(1)(i).

b. Revising paragraph (r)(1)(ii).

To: Kopocis, Ken[Kopocis.Ken@epa.gov]; Southerland, Elizabeth[Southerland.Elizabeth@epa.gov]; Garbow, Avi[Garbow.Avi@epa.gov]; Beauvais, Joel[Beauvais.Joel@epa.gov]
Cc: Stoner, Nancy[Stoner.Nancy@epa.gov]; Shapiro, Mike[Shapiro.Mike@epa.gov]; Gilinsky, Ellen[Gilinsky.Ellen@epa.gov]; Lape, Jeff[lape.jeff@epa.gov]; Zipf, Lynn[Zipf.Lynn@epa.gov]; Neugeboren, Steven[Neugeboren.Steven@epa.gov]; Wade, Alexis[Wade.Alexis@epa.gov]; Witt, Richard[Witt.Richard@epa.gov]; Levine, MaryEllen[levine.maryellen@epa.gov]; Neugeboren, Steven[Neugeboren.Steven@epa.gov]; Nickerson, William[Nickerson.William@epa.gov]; Balserak, Paul[Balserak.Paul@epa.gov]; Hewitt, Julie[Hewitt.Julie@epa.gov]
From: Wood, Robert
Sent: Mon 5/19/2014 3:25:27 PM
Subject: Final Biological Opinion Has Been Received

All,

The Fish and Wildlife Service transmitted to me just a little while ago, the final joint biological opinion of the U.S. Fish and Wildlife Service and the National Marine Fisheries Service on EPA's issuance and implementation of the final regulations implementing Section 316(b) of the Clean Water Act. The opinion is that the rule is not likely to jeopardize the continued existence of ESA-listed species and is not likely to destroy or adversely modify designated critical habitat.
Ex. 5 - Deliberative

Ex. 5 - Deliberative

Ex. 5 - Deliberative Thanks to everyone involved.

Rob

Robert K. Wood, Director

Engineering and Analysis Division

U.S. EPA Office of Water

202-566-1822

To: Stoner, Nancy[Stoner.Nancy@epa.gov]; Kopocis, Ken[Kopocis.Ken@epa.gov]; Gilinsky, Ellen[Gilinsky.Ellen@epa.gov]; Shapiro, Mike[Shapiro.Mike@epa.gov]; Grevatt, Peter[Grevatt.Peter@epa.gov]; Clark, Becki[Clark.Becki@epa.gov]; Best-Wong, Benita[Best-Wong.Benita@epa.gov]; Sawyers, Andrew[Sawyers.Andrew@epa.gov]; Southerland, Elizabeth[Southerland.Elizabeth@epa.gov]
Cc: Faller, Heidi[Faller.Heidi@epa.gov]; Skane, Elizabeth[Skane.Elizabeth@epa.gov]; Nandi, Romell[Nandi.Romell@epa.gov]; Lopez-Carbo, Maria[Lopez-Carbo.Maria@epa.gov]
From: Lousberg, Macara
Sent: Thur 5/15/2014 11:43:29 AM
Subject: Materials for tomorrow's OW managers' retreat
OW short and long term priorities 5 16 14.docx

Forwarding the attached table with all of the short and long term priorities provided by the IO and the program offices. There is also an addendum with items related to diversity, inclusion and civil rights on the last page of the document. If you have any questions on the table, please let me know. Questions about logistics for tomorrow should go to Nancy.

Macara

To: Stoner, Nancy[Stoner.Nancy@epa.gov]
Cc: Ruf, Christine[Ruf.Christine@epa.gov]
From: Lousberg, Macara
Sent: Wed 5/14/2014 9:02:05 PM
Subject: RE: will we be getting retreat materials today?
OW short and long term priorities 5 16 14.docx

I just gave the materials to Crystal and have attached the table here as well. If you want me to make any changes tomorrow before I send it to the ODs, et. al. please let me know.

Macara

From: Stoner, Nancy
Sent: Wednesday, May 14, 2014 3:22 PM
To: Lousberg, Macara; Ruf, Christine
Subject: will we be getting retreat materials today?

To: Kopocis, Ken[Kopocis.Ken@epa.gov]
Cc: Stoner, Nancy[Stoner.Nancy@epa.gov]; Zipf, Lynn[Zipf.Lynn@epa.gov]; Wood, Robert[Wood.Robert@epa.gov]
From: Southerland, Elizabeth
Sent: Tue 5/13/2014 6:11:56 PM
Subject: Draft Talking Points for the Administrator
051314 Talking Points for Administrator dmh_LZ.docx

Let us know if you want revisions to these talking points for the Administrator.

To: Stoner, Nancy[Stoner.Nancy@epa.gov]
From: Penman, Crystal
Sent: Tue 5/13/2014 6:06:34 PM
Subject: RE: 316(b) Powerpoint

Printed/review box

From: Stoner, Nancy
Sent: Friday, May 09, 2014 6:54 PM
To: Penman, Crystal
Subject: Fw: 316(b) Powerpoint

For my review, thx

From: Wood, Robert
Sent: Friday, May 9, 2014 6:34:07 PM
To: Southerland, Elizabeth; Stoner, Nancy; Sawyers, Andrew; Frace, Sheila; Nagle, Deborah; Kopocis, Ken
Cc: Shriner, Paul; Hewitt, Julie; Highsmith, Damon; Biddle, Lisa; Zipf, Lynn; Lape, Jeff
Subject: 316(b) Powerpoint

Hi Everybody,

Attached is a powerpoint paper we will be using with stakeholders during rollout. It is revised and improved, from the version many of you saw Wednesday, and reflects input from several people who were in our briefing with OWM. The rollout paper, Qs and As, and a fact sheet that have undergone additional editing today will be distributed under separate cover by Travis I believe, so stay tuned for those materials.

Rob

Robert K. Wood, Director

Engineering and Analysis Division

U.S. EPA Office of Water

202-566-1822

To: Stoner, Nancy[Stoner.Nancy@epa.gov]
Cc: Lousberg, Macara[Lousberg.Macara@epa.gov]; Southerland, Elizabeth[Southerland.Elizabeth@epa.gov]
From: Skane, Elizabeth
Sent: Mon 5/12/2014 6:10:24 PM
Subject: Updated version RE: For the May 16th retreat
051214 OST priorities.docx

Updated version, please use this one, thanks!

Elizabeth for Betsy.

Elizabeth Skane | Special Assistant / Regulatory Manager
Office of Science & Technology / Office of Water / US EPA | 202.564.5696

-----Original Message-----
From: Skane, Elizabeth On Behalf Of Southerland, Elizabeth
Sent: Monday, May 12, 2014 12:59 PM
To: Stoner, Nancy
Cc: Lousberg, Macara; Southerland, Elizabeth
Subject: RE: For the May 16th retreat

Please find attached OST's priorities/objectives.

Elizabeth for Betsy

Elizabeth Skane | Special Assistant / Regulatory Manager Office of Science & Technology / Office of Water / US EPA | 202.564.5696

-----Original Message-----
From: Stoner, Nancy
Sent: Wednesday, April 30, 2014 8:40 AM
To: Sawyers, Andrew; Best-Wong, Benita; Southerland, Elizabeth; Grevatt, Peter; Shapiro, Mike; Gilinsky, Ellen; Kopocis, Ken; Clark, Becki; Lousberg, Macara
Subject: For the May 16th retreat

I am planning for 8 people: Ken, Ellen, Mike, me, Betsy, Andrew, Benita, and Becki. Peter can't make it. If you think that there are one or two other people who are essential, please let me know, but 8 fit in my house better than 10, so I'm inclined to keep it at this size. The location will be at my house in Silver Spring near the Glenmont Metro Ex. 6 - Personal Privacy I will plan to make at least one metro run that morning. The metro stop is about a mile from my house. You can walk it in about 25 minutes, but it isn't that great a walk (mostly on a pretty busy road). It is about 4 miles outside the beltway for those inclined to drive. We can firm up the transportation plans later. I have a pretty good bagel place nearby that I thought I might hit for some morning refreshments.

Re the content, my current plan is to focus on near term (ie, before Jan 2017) objectives for each office and the IO in the morning and then longer term objectives in the afternoon. I'd like the 4 offices and Mike each to identify 3 or 4 priority items for discussion in the morning. Those should be priority items that we

anticipate completing by Jan 2017. We will discuss what we need to do collectively to make that happen. After we look these over, if any of us thinks we missed something important, we will add it.

I'd like to have everyone attending contribute 1-2 long term objectives for OW for afternoon discussion.

Macara has agreed to collect these ideas and distribute them in advance of the retreat. Let's get the ideas to her by Monday, May 12 at the latest. Entries don't need to be long -- a paragraph at the most. A sentence or phrase may be enough for others.

Re what to bring to retreat, just a pad of paper and a pen to take notes for yourself and some money for lunch. I haven't figured that out yet. We will finish by 5:30 at the latest. Let me know if that doesn't work for anyone.

Should be fun!

Nancy
ÿ

To: Stoner, Nancy[Stoner.Nancy@epa.gov]
Cc: Lousberg, Macara[Lousberg.Macara@epa.gov]; Southerland, Elizabeth[Southerland.Elizabeth@epa.gov]
From: Skane, Elizabeth
Sent: Mon 5/12/2014 4:58:53 PM
Subject: RE: For the May 16th retreat
051214 OST priorities.docx

Please find attached OST's priorities/objectives.

Elizabeth for Betsy

Elizabeth Skane | Special Assistant / Regulatory Manager
Office of Science & Technology / Office of Water / US EPA | 202.564.5696

-----Original Message-----
From: Stoner, Nancy
Sent: Wednesday, April 30, 2014 8:40 AM
To: Sawyers, Andrew; Best-Wong, Benita; Southerland, Elizabeth; Grevatt, Peter; Shapiro, Mike; Gilinsky, Ellen; Kopocis, Ken; Clark, Becki; Lousberg, Macara
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Should be fun!

Nancy
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To: Southerland, Elizabeth[Southerland.Elizabeth@epa.gov]; Stoner, Nancy[Stoner.Nancy@epa.gov]; Sawyers, Andrew[Sawyers.Andrew@epa.gov]; Frace, Sheila[Frace.Sheila@epa.gov]; Nagle, Deborah[Nagle.Deborah@epa.gov]; Kopocis, Ken[Kopocis.Ken@epa.gov]
Cc: Shriner, Paul[Shriner.Paul@epa.gov]; Hewitt, Julie[Hewitt.Julie@epa.gov]; Highsmith, Damon[Highsmith.Damon@epa.gov]; Biddle, Lisa[Biddle.Lisa@epa.gov]; Zipf, Lynn[Zipf.Lynn@epa.gov]; Lape, Jeff[lape.jeff@epa.gov]
From: Wood, Robert
Sent: Fri 5/9/2014 10:34:07 PM
Subject: 316(b) Powerpoint
Final Rule Brief_05-09-14.pptx

Hi Everybody,

Attached is a powerpoint paper we will be using with stakeholders during rollout. It is revised and improved, from the version many of you saw Wednesday, and reflects input from several people who were in our briefing with OWM. The rollout paper, Qs and As, and a fact sheet that have undergone additional editing today will be distributed under separate cover by Travis I believe, so stay tuned for those materials.

Rob

Robert K. Wood, Director

Engineering and Analysis Division

U.S. EPA Office of Water

202-566-1822

To: Stoner, Nancy[Stoner.Nancy@epa.gov]; Gilinsky, Ellen[Gilinsky.Ellen@epa.gov]; Shapiro, Mike[Shapiro.Mike@epa.gov]; Kopocis, Ken[Kopocis.Ken@epa.gov]; Lape, Jeff[lape.jeff@epa.gov]; Best-Wong, Benita[Best-Wong.Benita@epa.gov]; Sawyers, Andrew[Sawyers.Andrew@epa.gov]; Southerland, Elizabeth[Southerland.Elizabeth@epa.gov]; Grevatt, Peter[Grevatt.Peter@epa.gov]; Frace, Sheila[Frace.Sheila@epa.gov]; Evans, David[Evans.David@epa.gov]; Clark, Becki[Clark.Becki@epa.gov]
Cc: Telleen, Katherine[Telleen.Katherine@epa.gov]; Flaharty, Stephanie[Flaharty.Stephanie@epa.gov]; Zipf, Lynn[Zipf.Lynn@epa.gov]; Faller, Heidi[Faller.Heidi@epa.gov]; Lousberg, Macara[Lousberg.Macara@epa.gov]; Evalenko, Sandy[Evalenko.Sandy@epa.gov]; Skane, Elizabeth[Skane.Elizabeth@epa.gov]; Ruf, Christine[Ruf.Christine@epa.gov]; Loop, Travis[Loop.Travis@epa.gov]; Lopez-Carbo, Maria[Lopez-Carbo.Maria@epa.gov]; Sanelli, Diane[Sanelli.Diane@epa.gov]; Peterson, Jeff[Peterson.Jeff@epa.gov]; Bathersfield, Nizanna[Bathersfield.Nizanna@epa.gov]; Penman, Crystal[Penman.Crystal@epa.gov]; Nandi, Romell[Nandi.Romell@epa.gov]; Tarquinio, Ellen[Tarquinio.Ellen@epa.gov]; Peck, Gregory[Peck.Gregory@epa.gov]; Nelson, Tomeka[Nelson.Tomeka@epa.gov]; Penman, Crystal[Penman.Crystal@epa.gov]; Magruder, DeMara[Magruder.Demara@epa.gov]; Stevens, Robin[Stevens.Robin@epa.gov]; Gude, Karen[Gude.Karen@epa.gov]
From: Gude, Karen
Sent: Fri 5/9/2014 3:47:34 PM
Subject: 2-week review report (5.09.14)
5.09.2014 OP Review Status Update and Planning.docx

Karen Gude

Water Policy Staff, Office of Water

U.S. Environmental Protection Agency

Phone: (202) 564-9567

To: Stoner, Nancy[Stoner.Nancy@epa.gov]; Kopocis, Ken[Kopocis.Ken@epa.gov]; Gilinsky, Ellen[Gilinsky.Ellen@epa.gov]; Shapiro, Mike[Shapiro.Mike@epa.gov]; Lousberg, Macara[Lousberg.Macara@epa.gov]; Loop, Travis[Loop.Travis@epa.gov]; Bathersfield, Nizanna[Bathersfield.Nizanna@epa.gov]
Cc: Penman, Crystal[Penman.Crystal@epa.gov]
From: Tarquinio, Ellen
Sent: Mon 5/5/2014 8:37:51 PM
Subject: For Review: OW Cabinet Report
OW Weekly Administrator May 12th 2014.docx

Hi Nancy

Attached please find new items OW's submittal for this week's cabinet report, covering items scheduled to occur next week and forecasting the next 30 days.

As an FYI, I'll also send any new OW related items that have been submitted under the regions in a separate document Thursday.

Please let me know if you have any questions or comments.

Thanks!

Ellen

Ellen Tarquinio

Special Assistant

Office of the Administrator

WJC North 3320

202-566-2267

To: Amanda Brock[AMBrock@waterstandard.com]; derek.furstenwerth@calpine.com[derek.furstenwerth@calpine.com]; Janet Ranganathan[jranganathan@wri.org]; Stoner, Nancy[Stoner.Nancy@epa.gov]
From: Monika Freyman
Sent: Mon 5/5/2014 4:52:51 PM
Subject: Notes and Event - Energy Water Nexus
Powering the Future Notes.docx
ATT00001.htm

Dear Energy-Water Panel members
I wanted to share the draft notes from our panel (nothing too fancy but hopefully helpful). As I reviewed the notes and reflected upon our debate I came to the conclusion that working on the energy-water nexus is going to take much BIGGER thinking on water and that collective action by diverse end-users of water in any given water stressed region is going to be required. The panel I truly found inspirational and I do look forward to being in touch on the topic. I also wanted to share another energy-water nexus event - see below - that may be of interest.

Looking forward to being in touch.
Monika

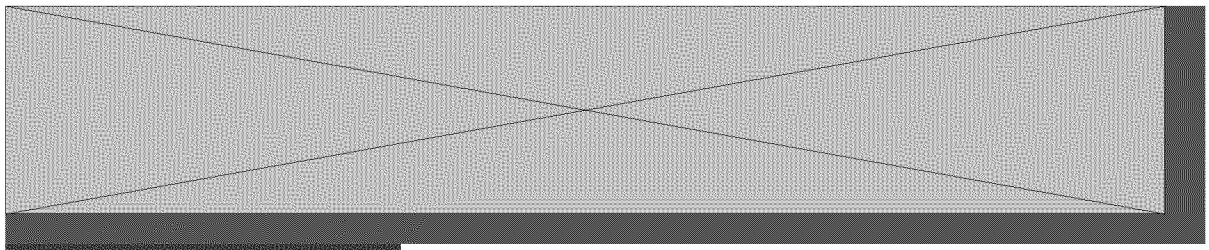
Monika Freyman CFA
Water Program, Ceres
Email: freyman@ceres.org,
617-247-0700 ext. 168
Skype: MonikaFreyman
www.ceres.org

Registration is still open for our 2014 annual conference at:
https://www.regonline.com/ceresconference2014

Learn more about Ceres

Ceres is an advocate for sustainability leadership. Our mission is mobilizing investor and business leadership to build a thriving, sustainable global economy.

From: "Atlantic Council" <energy@AtlanticCouncil.org>
Subject: **Event Tomorrow: The Nexus of Energy and Water for US Sustainability and National Security**
Date: May 5, 2014 11:12:40 AM EDT
To: <barton@ceres.org>
Reply-To: energy@AtlanticCouncil.org



The Nexus of Energy and Water for US Sustainability and National Security

We are pleased to invite you to participate in a **discussion with US Senator Lisa Murkowski** on the **release of a white paper in coordination with** *The Nexus of Energy and Water for Sustainability (NEWS) Act of 2014* (S. 1971).â‹ This white paper will elaborate on Senate bill 1971,

INTRODUCTION BY

The Hon. Jon M. Huntsman, Jr.
Chairman
Atlantic Council

May 6, 2014
8:30 a.m. Registration
9:00 - 10:00 a.m. Program

Atlantic Council
1030 15th Street NW
12th Floor (West Elevator)
Washington, DC 20005

REGISTER ONLINE

highlighting the importance and vital nature of the energy-water nexus.

Senate bill 1971, introduced by Senator Murkowski and Senator Wyden, recognizes that all forms of energy production require water and that our use of water requires energy. Together, energy and water resources are the foundation of our nationâ™s economy and are essential to our nationâ™s future and international security. Vast amounts of water are used every day to produce vital fuels and to cool power plants in the United States. Without this water supply, most of our electricity would stop flowing and our economy and other essential functions would come to a complete stop. At the same time, a great deal of electricity is needed to treat, transport, and convey water across the country not only to support economic growth and well-being but also to sustain basic life. These inseparable links of âœwater for energyâ and âœenergy for waterâ comprise the energy-water nexus.

This event, part of the Council's Energy-Water Nexus Initiative, will convene senior thought leaders from industry, government, academia, and other stakeholder groups on **May 6, 2014** from **8:30 a.m. - 10:00 a.m**.

Canâ™t make it? Watch the event **live**

online here.

This event is open to press and on the record.

VISITING THE COUNCIL: Metro and parking info

Questions? Please email *energy@AtlanticCouncil.org* or call (202) 599-8604.

This message was sent to barton@ceres.org from:

lAtlantic Council | 1030 15th Street NW, 12th Floor | Washington, DC 20005

Manage Your Subscription

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To: Stoner, Nancy[Stoner.Nancy@epa.gov]; Gilinsky, Ellen[Gilinsky.Ellen@epa.gov]; Shapiro, Mike[Shapiro.Mike@epa.gov]; Kopocis, Ken[Kopocis.Ken@epa.gov]; Lape, Jeff[lape.jeff@epa.gov]; Best-Wong, Benita[Best-Wong.Benita@epa.gov]; Sawyers, Andrew[Sawyers.Andrew@epa.gov]; Southerland, Elizabeth[Southerland.Elizabeth@epa.gov]; Grevatt, Peter[Grevatt.Peter@epa.gov]; Frace, Sheila[Frace.Sheila@epa.gov]; Evans, David[Evans.David@epa.gov]; Clark, Becki[Clark.Becki@epa.gov]
Cc: Telleen, Katherine[Telleen.Katherine@epa.gov]; Flaharty, Stephanie[Flaharty.Stephanie@epa.gov]; Zipf, Lynn[Zipf.Lynn@epa.gov]; Faller, Heidi[Faller.Heidi@epa.gov]; Lousberg, Macara[Lousberg.Macara@epa.gov]; Evalenko, Sandy[Evalenko.Sandy@epa.gov]; Skane, Elizabeth[Skane.Elizabeth@epa.gov]; Ruf, Christine[Ruf.Christine@epa.gov]; Loop, Travis[Loop.Travis@epa.gov]; Lopez-Carbo, Maria[Lopez-Carbo.Maria@epa.gov]; Sanelli, Diane[Sanelli.Diane@epa.gov]; Peterson, Jeff[Peterson.Jeff@epa.gov]; Bathersfield, Nizanna[Bathersfield.Nizanna@epa.gov]; Penman, Crystal[Penman.Crystal@epa.gov]; Nandi, Romell[Nandi.Romell@epa.gov]; Tarquinio, Ellen[Tarquinio.Ellen@epa.gov]; Peck, Gregory[Peck.Gregory@epa.gov]; Nelson, Tomeka[Nelson.Tomeka@epa.gov]; Penman, Crystal[Penman.Crystal@epa.gov]; Magruder, DeMara[Magruder.Demara@epa.gov]; Stevens, Robin[Stevens.Robin@epa.gov]; Gude, Karen[Gude.Karen@epa.gov]
From: Gude, Karen
Sent: Fri 5/2/2014 2:49:36 PM
Subject: 2-week review report (5.02.14)
5.02.2014 OP Review Status Update and Planning.docx

Karen Gude

Water Policy Staff, Office of Water

U.S. Environmental Protection Agency

Phone: (202) 564-9567

To: Kopocis, Ken[Kopocis.Ken@epa.gov]
From: Kurlansky, Ellen
Sent: Tue 11/5/2013 12:51:09 AM
Subject: Accepted: 316b Update

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To: Kopocis, Ken[Kopocis.Ken@epa.gov]
From: Microsoft Outlook
Sent: Mon 11/4/2013 8:59:43 PM
Subject: Meeting Forward Notification: 316b Update

Your meeting was forwarded

Beauvais, Joel has forwarded your meeting request to additional recipients.

Meeting

316b Update

Meeting Time

Tuesday, November 05, 2013 9:00 AM-10:00 AM.

Recipients

Kurlansky, Ellen

All times listed are in the following time zone: (UTC-05:00) Eastern Time (US & Canada)

Sent by Microsoft Exchange Server 2013

To: Kopocis, Ken[Kopocis.Ken@epa.gov]
From: Beauvais, Joel
Sent: Mon 11/4/2013 8:59:26 PM
Subject: RE: 316b mtg with FERC

Thx, Ken

From: Kopocis, Ken
Sent: Monday, November 04, 2013 3:57 PM
To: Beauvais, Joel
Cc: Kurlansky, Ellen; Goffman, Joseph
Subject: Re: 316b mtg with FERC

That is fine with me.

From: Beauvais, Joel
Sent: Monday, November 04, 2013 3:22:01 PM
To: Kopocis, Ken
Cc: Kurlansky, Ellen; Goffman, Joseph
Subject: 316b mtg with FERC

Hi, Ken – Thanks for inviting me to your 316b mtg with FERC tomorrow am. Unfortunately, something has just come up and I have to be out of the office for the am. Joe is also out of the office tomorrow am. Would it be OK with you if Ellen Kurlansky (cc'd), who helps coordinate OAR's engagement with FERC on these issues, joins the meeting? She knows Christy well. It's your meeting of course, but it would be helpful from our perspective to be able to listen in, given our ongoing dialogue with them on this stuff.

Joel

To: Kopocis, Ken[Kopocis.Ken@epa.gov]; Garbow, Avi[Garbow.Avi@epa.gov]
Cc: Distefano, Nichole[DiStefano.Nichole@epa.gov]
From: Vaught, Laura
Sent: Tue 10/29/2013 6:54:15 PM
Subject: for review
Ken K responses talking points.doc

Can you all please take a look (ideally before tomorrow around 10:00 AM) at my current working version that I would like to talk through with Vitter's staff?

The language on 316(b) and on the post Sackett order language is the same as we have all seen, but I attempted to put some narrative to the Bristol Bay and stormwater sections that I want to make sure you all are comfortable with before I talk through with him.

At some point (soon) language to this effect will need to be put into a letter, so want to make sure that there isn't anything in this that couldn't be included in correspondence.

Thanks!

Laura E. Vaught

Associate Administrator

Office of Congressional and Intergovernmental Relations

U.S. Environmental Protection Agency

(202) 564-0304 (direct)

To: Witt, Richard[Witt.Richard@epa.gov]; Garbow, Avi[Garbow.Avi@epa.gov]; Kopocis, Ken[Kopocis.Ken@epa.gov]; Southerland, Elizabeth[Southerland.Elizabeth@epa.gov]
Cc: Neugeboren, Steven[Neugeboren.Steven@epa.gov]; Levine, MaryEllen[levine.maryellen@epa.gov]
From: Wood, Robert
Sent: Tue 10/29/2013 2:11:43 PM
Subject: RE: 316(b) deadline

Thanks Richard. We should keep the explanation simple and succinct. Something like "To complete work on the rule and provide the time necessary for the Services to complete their biological opinion.

Robert Wood

Engineering and Analysis Division

Office of Water

202-566-1822

From: Witt, Richard
Sent: Tuesday, October 29, 2013 10:05 AM
To: Garbow, Avi; Stoner, Nancy; Kopocis, Ken; Southerland, Elizabeth; Wood, Robert
Cc: Neugeboren, Steven; Levine, MaryEllen
Subject: 316(b) deadline

Litigation confidential

I spoke with Reed Super at Riverkeeper concerning our need for an extension of the deadline for taking final action on the 316(b) rule. I indicated that, in light of the shutdown, the need to provide the Services with adequate time to prepare the BO and our need to respond, we were requesting an extension to Jan. 14. He indicated that he would discuss this with his clients and get back to me quickly.

Ex. 5 - Attorney Client

Ex. 5 - Attorney Client

To: Kopocis, Ken[Kopocis.Ken@epa.gov]
From: Christy.Walsh@ferc.gov
Sent: Mon 10/28/2013 8:22:54 PM
Subject: Meeting Forward Notification: 316b Update

Your meeting was forwarded

Christy Walsh has forwarded your meeting request to additional recipients.

Meeting
316b Update

Meeting Time
Tuesday, November 05, 2013 9:00 AM - Tuesday, November 05, 2013 10:00 AM

Recipients
Leonard Tao,Edward Franks,Michael Bardee

All times listed are in the following time zone: (UTC-05:00) Eastern Time (US & Canada)

To: Kopocis, Ken[Kopocis.Ken@epa.gov]
Cc: Goo, Michael[Goo.Michael@epa.gov]; Balserak, Paul[Balserak.Paul@epa.gov]; Roberts, Martha[Roberts.Martha@epa.gov]; Kenny, Shannon[Kenny.Shannon@epa.gov]
From: Feldt, Lisa
Sent: Thur 10/24/2013 10:04:22 PM
Subject: RE: 316B Non-ESA Issues

thanks

Lisa Feldt

Associate Deputy Administrator

Office of the Administrator

Environmental Protection Agency

office: 202-564-4711

From: Kopocis, Ken
Sent: Thursday, October 24, 2013 4:58 PM
To: Feldt, Lisa
Cc: Goo, Michael; Balserak, Paul; Roberts, Martha; Kenny, Shannon
Subject: RE: 316B Non-ESA Issues

I also believe it is on a different time track – not as critical as ESA, but timely nonetheless.

I am working on it. I also talked briefly today with the Administrator about it.

Ken

From: Feldt, Lisa
Sent: Thursday, October 24, 2013 4:45 PM
To: Kopocis, Ken
Cc: Goo, Michael; Balserak, Paul; Roberts, Martha; Kenny, Shannon
Subject: 316B Non-ESA Issues

Ken,

I was calling you but Michael relayed to me that he had talked to you about the changes needed on non-ESA related issues. I think this is on a different time track but 1) Wanted to make sure you were aware and 2)that your folks are following up on it.

Lisa Feldt

Associate Deputy Administrator

Office of the Administrator

Environmental Protection Agency

office: 202-564-4711

To: Stoner, Nancy[Stoner.Nancy@epa.gov]; Kopocis, Ken[Kopocis.Ken@epa.gov]
Cc: Penman, Crystal[Penman.Crystal@epa.gov]; Smith, Kelley[Smith.Kelley@epa.gov]
From: Administrator B6
Sent: Tue 10/22/2013 10:17:20 PM
Subject: General w/Nancy Stoner/Ken Kopocis

Subj: 316B

Staff:
Lisa Feldt

To: Kopocis, Ken[Kopocis.Ken@epa.gov]
From: Beauvais, Joel
Sent: Tue 10/22/2013 4:35:55 PM
Subject: 316(b)

Hi, Ken – Left a message at your office. Can you give me a ring on something related to 316(b) when you get a chance? 564-1684.

Joel

To: Kopocis, Ken[Kopocis.Ken@epa.gov]
From: Vaught, Laura
Sent: Mon 10/21/2013 8:38:01 PM
Subject: Accepted: Cooling Water Intake

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To: Kopocis, Ken[Kopocis.Ken@epa.gov]
From: Ann W Loomis (Services - 6)
Sent: Mon 10/21/2013 8:33:38 PM
Subject: Accepted: Cooling Water Intake

To: Kopocis, Ken[Kopocis.Ken@epa.gov]
From: Vaught, Laura
Sent: Mon 10/21/2013 12:52:39 PM
Subject: 316b

I think we have duplicative meetings going on. Would you be willing to invite me and Lisa F to your meeting with Ann L tomorrow?ÿ

To: Stoner, Nancy[Stoner.Nancy@epa.gov]; Kopocis, Ken[Kopocis.Ken@epa.gov]; Garbow, Avi[Garbow.Avi@epa.gov]; Goo, Michael[Goo.Michael@epa.gov]; Roberts, Martha[Roberts.Martha@epa.gov]; Feldt, Lisa[Feldt.Lisa@epa.gov]; Neugeboren, Steven[Neugeboren.Steven@epa.gov]; Vaught, Laura[Vaught.Laura@epa.gov]; Scozzafava, MichaelE[Scozzafava.MichaelE@epa.gov]
Cc: Wood, Robert[Wood.Robert@epa.gov]; Southerland, Elizabeth[Southerland.Elizabeth@epa.gov]; Witt, Richard[Witt.Richard@epa.gov]; Wade, Alexis[Wade.Alexis@epa.gov]; Levine, MaryEllen[levine.maryellen@epa.gov]; Gilinsky, Ellen[Gilinsky.Ellen@epa.gov]
From: Smith, Kelley
Sent: Fri 10/18/2013 2:18:31 PM
Subject: 316B Discussion

CT: Kelley Smith

Call in: Non-Responsive
Code:

Staff:

Lisa Feldt
Nancy Stoner
Ken Kopocis
Steve Neugeboren (for Avi Garbow who is out of the country)
Michael Goo
Laura Vaught

Optional:
Martha Roberts
Mike Scozzafava

Note: Kelley will open the call

To: Feldt, Lisa[Feldt.Lisa@epa.gov]; Garbow, Avi[Garbow.Avi@epa.gov]; Goo, Michael[Goo.Michael@epa.gov]
Cc: Southerland, Elizabeth[Southerland.Elizabeth@epa.gov]; Wood, Robert[Wood.Robert@epa.gov]; Neugeboren, Steven[Neugeboren.Steven@epa.gov]; Kopocis, Ken[Kopocis.Ken@epa.gov]
From: Stoner, Nancy
Sent: Thur 10/17/2013 10:28:51 PM
Subject: 316(b)
Questions re ESA coordination process under 316.docx

Attached are updated Qs and As for tomorrow's meeting. See you then

To: Wood, Robert[Wood.Robert@epa.gov]
Cc: Kopocis, Ken[Kopocis.Ken@epa.gov]; Southerland, Elizabeth[Southerland.Elizabeth@epa.gov]; Neugeboren, Steven[Neugeboren.Steven@epa.gov]; Levine, MaryEllen[levine.maryellen@epa.gov]; Witt, Richard[Witt.Richard@epa.gov]; Wade, Alexis[Wade.Alexis@epa.gov]; Hewitt, Julie[Hewitt.Julie@epa.gov]; Matuszko, Jan[Matuszko.Jan@epa.gov]
From: Stoner, Nancy
Sent: Thur 10/17/2013 5:20:55 PM
Subject: Re: here's the 316(b) Qs and As and revised flowchart (which I forgot to give to Jeff)

OGC should take lead on deadline extension issue

From: Wood, Robert
Sent: Thursday, October 17, 2013 1:06:28 PM
To: Stoner, Nancy
Cc: Kopocis, Ken; Southerland, Elizabeth; Neugeboren, Steven; Levine, MaryEllen; Witt, Richard; Wade, Alexis; Hewitt, Julie; Matuszko, Jan
Subject: RE: here's the 316(b) Qs and As and revised flowchart (which I forgot to give to Jeff)

I am working on the edits to the ESA preamble and will **Ex. 5 - Deliberative**

Ex. 5 - Deliberative

Would you like me to prepare a note for you to send to Gary and Lois along these lines so we can determine the target date for the extension?

Robert Wood

Engineering and Analysis Division

Office of Water

202-566-1822

From: Stoner, Nancy
Sent: Thursday, October 17, 2013 12:29 PM
To: Wood, Robert; Southerland, Elizabeth
Cc: Kopocis, Ken
Subject: here's the 316(b) Qs and As and revised flowchart (which I forgot to give to Jeff)

Ex. 5 - Deliberative

To: Kopocis, Ken[Kopocis.Ken@epa.gov]
From: Feldt, Lisa
Sent: Tue 10/1/2013 7:51:02 PM
Subject: RE: Mtg with Administrator today

Will do.

Lisa Feldt
Associate Deputy Administrator
Office of the Administrator
Environmental Protection Agency
office: 202-564-4711

-----Original Message-----
From: Kopocis, Ken
Sent: Tuesday, October 01, 2013 3:46 PM
To: Feldt, Lisa
Subject: Mtg with Administrator today

I assume today's meeting is 316(b)?
Please let her know I am not exempt or excepted.
Thanks.
KK
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To: Kopocis, Ken[Kopocis.Ken@epa.gov]
From: Stoner, Nancy
Sent: Tue 10/1/2013 4:28:36 PM
Subject: FW: 316(b) preamble and rule for your review
Cooling Water Intakes_2040-AE95_Final_Rule.clean version of 8-30-2013.docx
Preamble Section VIII.K to replace pp. 312-315 of 22July2013 preamble.13Sept2013.docx
EO12866_Cooling Water Intakes_2040-AE95_Preamble_20130903.docx

This is what I have.

From: Hewitt, Julie
Sent: Friday, September 13, 2013 5:04 PM
To: Stoner, Nancy; Kopocis, Ken; Penman, Crystal
Cc: Southerland, Elizabeth; Wood, Robert; Neugeboren, Steven; Levine, MaryEllen; Witt, Richard; Wade, Alexis; Zobrist, Marcus; Saxena, Juhi; Piziali, Jamie; Born, Tom
Subject: 316(b) preamble and rule for your review

Three files attached:

· Rule language: contains what EPA had agreed to with the Services through 8/30; does not include September progress.

· Preamble: our latest version of full preamble without ESA updates.

· ESA insert to preamble: replaces section VIII.K on pp. 313-316 of full preamble file.

In the interest of time, we didn't do the technical edits that you suggested this morning.

To: KeyesFleming, Gwendolyn[KeyesFleming.Gwendolyn@epa.gov]
From: Rogers, Faith
Sent: Thur 5/1/2014 10:10:07 PM
Subject: May 5th - Weekly Administrator's Report
EPA Weekly Administrator's Report 05 05 14.docx

Good evening,

Attached please find the Administrator's Report for the week of May 5th.

Thank you,

Faith Rogers

Deputy White House Liaison

Environmental Protection Agency

Desk: 202-564-2446

Cell: 202-909-5500

rogers.faith@epa.gov

To: Stoner, Nancy[Stoner.Nancy@epa.gov]; Kopocis, Ken[Kopocis.Ken@epa.gov]; Gilinsky, Ellen[Gilinsky.Ellen@epa.gov]; Shapiro, Mike[Shapiro.Mike@epa.gov]; Lousberg, Macara[Lousberg.Macara@epa.gov]; Loop, Travis[Loop.Travis@epa.gov]; Bathersfield, Nizanna[Bathersfield.Nizanna@epa.gov]
Cc: Penman, Crystal[Penman.Crystal@epa.gov]
From: Tarquinio, Ellen
Sent: Mon 4/28/2014 8:10:44 PM
Subject: For Review: OW Cabinet Report
OW Weekly Administrator May 5th 2014.docx

Hi Nancy

Attached please find new items OW's submittal for this week's cabinet report, covering items scheduled to occur next week and forecasting the next 30 days.

As an FYI, I'll also send any new OW related items that have been submitted under the regions in a separate document Thursday.

Please let me know if you have any questions or comments.

Thanks!

Ellen

Ellen Tarquinio

Special Assistant

Office of the Administrator

WJC North 3320

202-566-2267

To: Stoner, Nancy[Stoner.Nancy@epa.gov]; Gilinsky, Ellen[Gilinsky.Ellen@epa.gov]; Shapiro, Mike[Shapiro.Mike@epa.gov]; Kopocis, Ken[Kopocis.Ken@epa.gov]; Lape, Jeff[lape.jeff@epa.gov]; Best-Wong, Benita[Best-Wong.Benita@epa.gov]; Sawyers, Andrew[Sawyers.Andrew@epa.gov]; Southerland, Elizabeth[Southerland.Elizabeth@epa.gov]; Grevatt, Peter[Grevatt.Peter@epa.gov]; Frace, Sheila[Frace.Sheila@epa.gov]; Evans, David[Evans.David@epa.gov]; Clark, Becki[Clark.Becki@epa.gov]
Cc: Telleen, Katherine[Telleen.Katherine@epa.gov]; Flaharty, Stephanie[Flaharty.Stephanie@epa.gov]; Zipf, Lynn[Zipf.Lynn@epa.gov]; Faller, Heidi[Faller.Heidi@epa.gov]; Lousberg, Macara[Lousberg.Macara@epa.gov]; Evalenko, Sandy[Evalenko.Sandy@epa.gov]; Skane, Elizabeth[Skane.Elizabeth@epa.gov]; Ruf, Christine[Ruf.Christine@epa.gov]; Loop, Travis[Loop.Travis@epa.gov]; Lopez-Carbo, Maria[Lopez-Carbo.Maria@epa.gov]; Sanelli, Diane[Sanelli.Diane@epa.gov]; Peterson, Jeff[Peterson.Jeff@epa.gov]; Bathersfield, Nizanna[Bathersfield.Nizanna@epa.gov]; Penman, Crystal[Penman.Crystal@epa.gov]; Nandi, Romell[Nandi.Romell@epa.gov]; Tarquinio, Ellen[Tarquinio.Ellen@epa.gov]; Peck, Gregory[Peck.Gregory@epa.gov]; Nelson, Tomeka[Nelson.Tomeka@epa.gov]; Penman, Crystal[Penman.Crystal@epa.gov]; Magruder, DeMara[Magruder.Demara@epa.gov]; Stevens, Robin[Stevens.Robin@epa.gov]; Gude, Karen[Gude.Karen@epa.gov]
From: Gude, Karen
Sent: Fri 4/25/2014 1:57:53 PM
Subject: 2-week review report (4.25.14)
4.25.2014 OP Review Status Update and Planning.docx

Karen Gude

Water Policy Staff, Office of Water

U.S. Environmental Protection Agency

Phone: (202) 564-9567

To: Stoner, Nancy[Stoner.Nancy@epa.gov]
From: Kirsch, Susan
Sent: Fri 4/18/2014 9:40:24 PM
Subject: Association of Clean Water Administrators Weekly Wrap, Vol. V Issue 14 (Week of April 14, 2014)

This Week's Wrap is accessible here*:

http://image.exct.net/lib/fe651570766002797017/m/1/ACWA_Weekly_Wrap_Vol+V_Issue14_FINAL.pdf

**Please try refreshing your browser if you encounter font formatting issues that make the above-linked PDF difficult to view when first opened. Please notify us if this fails to correct the problem.*

In this issue . . .

- ACWA Names New Executive Director!

- Welcome to new Washington State ACWA rep

- Waters of the U.S. rule proposal set for publication in Fed. Register on Monday, April 21

- Funding News: ACWA joins others in statement to House Approps Subcommittee on SRF $

- Final 316(b) Rule delayed

- Highlights from ACWA MSA Committee and Decentralized MOU Partner Calls this week

- Clean Water Act Laboratory Methods Outreach

-NPDES eReporting Rule Technical Workgroup discussions continue . . .

Check out "Coming Up" for several calls & webinars set for next week!

This week's Wrap will be posted to the web early next week on ACWA's website - where you can currently find the last five issues and an archive of the issues from 2013 to present.

What is the Wrap? The Weekly Wrap is a one page road map of the past week's events and upcoming activities. The Wrap reminds our membership of important deadlines and may highlight information distributed by the Association. Please direct any Wrap comments to Susan Kirsch at skirsch@acwa-us.org.

Enjoy your weekend!

The ACWA Staff

To: Stoner, Nancy[Stoner.Nancy@epa.gov]; Gilinsky, Ellen[Gilinsky.Ellen@epa.gov]; Shapiro, Mike[Shapiro.Mike@epa.gov]; Kopocis, Ken[Kopocis.Ken@epa.gov]; Lape, Jeff[lape.jeff@epa.gov]; Best-Wong, Benita[Best-Wong.Benita@epa.gov]; Sawyers, Andrew[Sawyers.Andrew@epa.gov]; Southerland, Elizabeth[Southerland.Elizabeth@epa.gov]; Grevatt, Peter[Grevatt.Peter@epa.gov]; Frace, Sheila[Frace.Sheila@epa.gov]; Evans, David[Evans.David@epa.gov]; Clark, Becki[Clark.Becki@epa.gov]
Cc: Telleen, Katherine[Telleen.Katherine@epa.gov]; Flaharty, Stephanie[Flaharty.Stephanie@epa.gov]; Zipf, Lynn[Zipf.Lynn@epa.gov]; Faller, Heidi[Faller.Heidi@epa.gov]; Lousberg, Macara[Lousberg.Macara@epa.gov]; Evalenko, Sandy[Evalenko.Sandy@epa.gov]; Skane, Elizabeth[Skane.Elizabeth@epa.gov]; Ruf, Christine[Ruf.Christine@epa.gov]; Loop, Travis[Loop.Travis@epa.gov]; Lopez-Carbo, Maria[Lopez-Carbo.Maria@epa.gov]; Sanelli, Diane[Sanelli.Diane@epa.gov]; Peterson, Jeff[Peterson.Jeff@epa.gov]; Bathersfield, Nizanna[Bathersfield.Nizanna@epa.gov]; Penman, Crystal[Penman.Crystal@epa.gov]; Nandi, Romell[Nandi.Romell@epa.gov]; Tarquinio, Ellen[Tarquinio.Ellen@epa.gov]; Peck, Gregory[Peck.Gregory@epa.gov]; Nelson, Tomeka[Nelson.Tomeka@epa.gov]; Penman, Crystal[Penman.Crystal@epa.gov]; Magruder, DeMara[Magruder.Demara@epa.gov]; Stevens, Robin[Stevens.Robin@epa.gov]; Gude, Karen[Gude.Karen@epa.gov]
From: Gude, Karen
Sent: Fri 4/18/2014 4:23:51 PM
Subject: 2-week review report (4.18.14)
4.18.2014 OP Review Status Update and Planning.docx

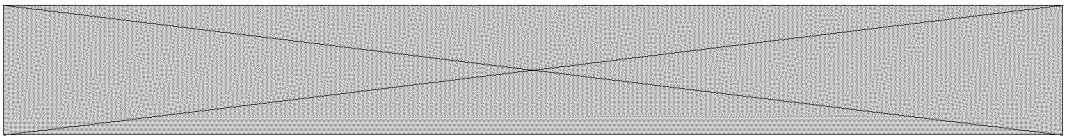
Karen Gude

Water Policy Staff, Office of Water

U.S. Environmental Protection Agency

Phone: (202) 564-9567

To: Stoner, Nancy[Stoner.Nancy@epa.gov]
From: E&E Publishing
Sent: Thur 4/17/2014 5:34:34 PM
Subject: April 17 -- Greenwire is ready



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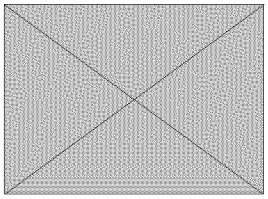

Greenwire -- Thu., April 17, 2014 -- Read the full edition

1. WATER POLICY: Major Obama proposal doesn't change ag rules -- so why are farm groups so worried?

Today, farmers and ranchers can freely do any number of things on their property affecting rivers, creeks and wetlands that no other sector could undertake without going to the federal government for permission. Under a major regulatory proposal being pushed by U.S. EPA and the Army Corps of Engineers that wouldn't change -- but some major farm groups are vowing to kill the plan. The main concerns appear to be less about what federal regulators are proposing now than what both farmers and environmentalists expect could come next.

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2. FEDERAL WORKERS: With death threats, Nev. conflict highlights dangerous side of public land management

3. EPA: Industries lobby White House to ease up on waste rule

4. AIR POLLUTION: Study outlines minorities' dramatically higher exposure to NO2

Politics

5. CAMPAIGN 2014: In the piney woods of Va., Warner boldly goes

where most Dems won't

6. CLIMATE: Fossil fuels states band together on existing power plant rule

7. FEDERAL AGENCIES: EPA, DOE chiefs warm up their pitching arms for Earth Day appearance at Fenway Park

8. POLITICS: In changing W.Va., Manchin keeping 'options open' for 2016

9. KEYSTONE XL: TransCanada strikes a positive note as Canadian premier tangles with Carter

10. OIL AND GAS: API launches digital campaign to counter anti-drilling ballot initiatives

Natural Resources

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14. GULF SPILL: Coast Guard disputes BP's announcement that cleanup is done

15. AGRICULTURE: Group releases 'open source seeds' free of legal restrictions

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17. NATURAL DISASTERS: Wash. mudslide death toll rises to 39; 6 still missing

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18. UTILITIES: Greens go back to court to speed cooling water intake rule

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36. CHINA: 170 dead swine found in river

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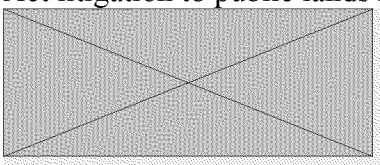
To send a press release, fax 202-737-5299 or e-mail editorial@eenews.net.

About Greenwire

Greenwire is written and produced by the staff of E&E Publishing, LLC. The one-stop source for those who need to stay on top of all of today's major energy and environmental action with an average of more than 20 stories a day, Greenwire covers the complete spectrum, from electricity industry restructuring to Clean Air Act litigation to public lands management. Greenwire publishes daily at 1 p.m.



To: Neugeboren, Steven[Neugeboren.Steven@epa.gov]; Garbow, Avi[Garbow.Avi@epa.gov]; Feldt, Lisa[Feldt.Lisa@epa.gov]; Kopocis, Ken[Kopocis.Ken@epa.gov]; Stoner, Nancy[Stoner.Nancy@epa.gov]; Levine, MaryEllen[levine.maryellen@epa.gov]; Witt, Richard[Witt.Richard@epa.gov]; Wade, Alexis[Wade.Alexis@epa.gov]; Southerland, Elizabeth[Southerland.Elizabeth@epa.gov]; Hewitt, Julie[Hewitt.Julie@epa.gov]; Mitchell, Stacey[Mitchell.Stacey@epa.gov]
Cc: Highsmith, Damon[Highsmith.Damon@epa.gov]; Lalley, Cara[Lalley.Cara@epa.gov]; Senn, John[Senn.John@epa.gov]; Loop, Travis[Loop.Travis@epa.gov]
From: Wood, Robert
Sent: Thur 4/17/2014 3:10:47 PM
Subject: RE: BNA today article about Riverkeeper intent to reactivate litigation on 316b

Not unexpected. I'm adding OST and OW communications folks.

Robert K. Wood, Director

Engineering and Analysis Division

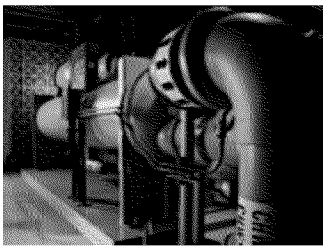
U.S. EPA Office of Water

202-566-1822

From: Neugeboren, Steven
Sent: Thursday, April 17, 2014 11:06 AM
To: Garbow, Avi; Feldt, Lisa; Kopocis, Ken; Stoner, Nancy; Levine, MaryEllen; Witt, Richard; Wade, Alexis; Wood, Robert; Southerland, Elizabeth; Hewitt, Julie; Wood, Robert; Mitchell, Stacey
Subject: BNA today article about Riverkeeper intent to reactivate litigation on 316b

In case you haven't see this

Riverkeeper Plans to Reopen Lawsuit
Against EPA Over Delayed Cooling Water Rule



BNA Snapshot

Cooling Water Rule Delays

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The EPA had been subject to an April 17 deadline to issue the final rule under an earlier agreement with Riverkeeper and was unable to renegotiate what would have been a sixth extension, U.S. Attorney Preet Bharara informed the U.S. District Court for the Southern District of New York.

The final rule under Section 316 (b) of the Clean Water Act would regulate the design, location and construction of cooling water intake structures to minimize the trapping and killing of fish and other aquatic life.

The EPA told Bloomberg BNA it would issue the final rule a month later—on May 16.

"EPA requires the additional time to complete inter-agency consultations with the Fish and Wildlife Service and the National Marine Fisheries Service pursuant to the Endangered Species Act, which are integral for finalizing the 316(b) rule," the agency said in an e-mail.

Riverkeeper, a New York-based group focused largely on protecting the Hudson River, has previously agreed to five postponements sought by EPA on the cooling water intake rule (30 DEN A-5, 2/13/14).

However, the group refused to agree or respond to EPA's request for another monthlong delay and has already set an April 23 date with the court to reopen the legal proceedings.

EPA in 'Breach' of Settlement

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From: Neugeboren, Steven
Sent: Thur 4/17/2014 3:05:41 PM
Subject: BNA today article about Riverkeeper intent to reactivate litigation on 316b

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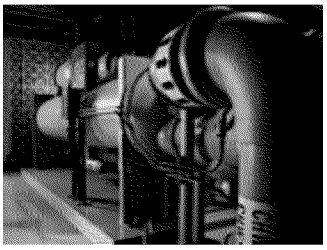

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To contact the reporter on this story: Amena H. Saiyid in Washington at asaiyid@bna.com

To contact the editor responsible for this story: Larry Pearl at lpearl@bna.com

To: Stoner, Nancy[Stoner.Nancy@epa.gov]; Gilinsky, Ellen[Gilinsky.Ellen@epa.gov]; Kopocis, Ken[Kopocis.Ken@epa.gov]
From: Southerland, Elizabeth
Sent: Thur 4/17/2014 12:43:11 PM
Subject: FW: FYI, BNA: "Riverkeeper Plans to Reopen Lawsuit Against EPA Over Delayed Cooling Water Rule"

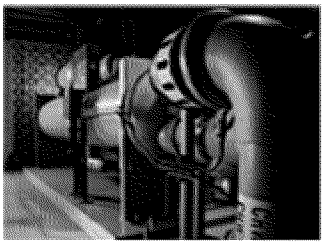
Other than this, the day is going pretty well.....

From: Skane, Elizabeth
Sent: Thursday, April 17, 2014 8:34 AM
To: Southerland, Elizabeth; Wood, Robert; Hewitt, Julie
Subject: FYI, BNA: "Riverkeeper Plans to Reopen Lawsuit Against EPA Over Delayed Cooling Water Rule"

Wasn't sure if you'd seen this yet...

http://news.bna.com/deln/DELNWB/split_display.adp?fedfid=44950785&vname=dennotallissues&jd=a0e9d5x9f2&split=0

Riverkeeper Plans to Reopen Lawsuit Against EPA Over Delayed Cooling Water Rule



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To contact the editor responsible for this story: Larry Pearl at lpearl@bna.com

For More Information

The Riverkeeper statement, as well as statements from the Justice Department and EPA to the court, are available at http://op.bna.com/env.nsf/r?Open=smiy-9j8uqq .

Elizabeth Skane | Special Assistant / Regulatory Manager
Office of Science & Technology / Office of Water / US EPA | 202.564.5696

To: Stoner, Nancy[Stoner.Nancy@epa.gov]; Gilinsky, Ellen[Gilinsky.Ellen@epa.gov]; Shapiro, Mike[Shapiro.Mike@epa.gov]; Kopocis, Ken[Kopocis.Ken@epa.gov]; Lousberg, Macara[Lousberg.Macara@epa.gov]
Cc: Lape, Jeff[lape.jeff@epa.gov]; Southerland, Elizabeth[Southerland.Elizabeth@epa.gov]
From: Skane, Elizabeth
Sent: Tue 4/15/2014 7:45:13 PM
Subject: updated version RE: Action Items Related to Clean Water for the Administrator to Highlight
041514 OST Action Items Related to Clean Water.docx

I found a typo in our earlier version, please use this one. thanks.

Elizabeth Skane | Special Assistant / Regulatory Manager

Office of Science & Technology / Office of Water / US EPA | 202.564.5696

From: Skane, Elizabeth **On Behalf Of** Southerland, Elizabeth
Sent: Tuesday, April 15, 2014 1:33 PM
To: Stoner, Nancy; Gilinsky, Ellen; Shapiro, Mike; Kopocis, Ken; Lousberg, Macara
Cc: Southerland, Elizabeth; Lape, Jeff
Subject: FW: Action Items Related to Clean Water for the Administrator to Highlight

Please let us know if you have any questions, thanks.

Elizabeth for Betsy

Elizabeth Skane | Special Assistant / Regulatory Manager

Office of Science & Technology / Office of Water / US EPA | 202.564.5696

From: Stoner, Nancy
Sent: Thursday, April 10, 2014 2:15 PM
To: OW Deputy Office Directors
Cc: Lousberg, Macara; Loop, Travis; Gilinsky, Ellen; Shapiro, Mike; Kopocis, Ken
Subject: Action Items Related to Clean Water for the Administrator to Highlight

Office Directors:

As you know, we have been working on a Clean Water Initiative to highlight how we in the Office of Water are trying to take the Clean Water Act to the next level of protection, in harmony with the Administrator's themes of making a difference in communities, climate resiliency and fostering innovation. We have had many discussions about this, including at the recent Water Division Directors' meeting following the meeting with the state associations.

On March 19, Ellen followed up with either you or your staff and asked for more details on actions that the Administrator could announce that coincide with her over-arching themes.

Ex. 5 - Deliberative

Ex. 5 - Deliberative

Ex. 5 - Deliberative

So let's try this a different way. I am asking each Office and the IO to

give me 5 actions in any of the three theme areas listed above that will be accomplished in the next 6 months. I am talking about the what, how, why and when. For instance, I know we are updating the How's My Waterway app to include more information - so you would list what is being updated, why (expected outcome on getting more citizens involved with water quality in their area), and the date it will be completed so we can announce it.

This should not take long to do - so I am asking for this information back by April 15th (a date that is easy to remember). Please call me if you have any questions. Thanks.

To: Stoner, Nancy[Stoner.Nancy@epa.gov]
From: Lousberg, Macara
Sent: Mon 4/14/2014 1:55:14 PM
Subject: Fw: 316(b) update

FYI

From: Wood, Robert
Sent: Monday, April 14, 2014 9:39:21 AM
To: Lousberg, Macara
Subject: Re: 316(b) update

Litigant is not aware as far as I know. Will be working on this with OGC today and will update Nancy before 1 PM meeting.

Robert K. Wood
Director,
Engineering and Analysis Division
U.S. EPA Office of Water
202-566-1822

From: Lousberg, Macara
Sent: Monday, April 14, 2014 9:37:29 AM
To: Wood, Robert; Zipf, Lynn
Subject: 316(b) update

Nancy will be mentioning the new date at the 1:00 Administrator staff meeting. She asked me to find out if the new date is agreed to by the litigant, and if not what the status is on negotiating with them. Thanks.

Macara
ÿ

To: KeyesFleming, Gwendolyn[KeyesFleming.Gwendolyn@epa.gov]
From: Rogers, Faith
Sent: Thur 4/10/2014 10:57:08 PM
Subject: April 14th - Weekly Administrator's Report
EPA DRAFT Weekly Administrator's Report 04 14 14 final w comments.docx

Good evening,

Attached please find the Administrator's Report for the week of April 14th.

Thank you.

Faith Rogers

Deputy White House Liaison

Environmental Protection Agency

Desk: 202-564-2446

Cell: 202-909-5500

rogers.faith@epa.gov

To: Stoner, Nancy[Stoner.Nancy@epa.gov]; Shapiro, Mike[Shapiro.Mike@epa.gov]; Kopocis, Ken[Kopocis.Ken@epa.gov]; Gilinsky, Ellen[Gilinsky.Ellen@epa.gov]; Peck, Gregory[Peck.Gregory@epa.gov]; Lousberg, Macara[Lousberg.Macara@epa.gov]; Klasen, Matthew[Klasen.Matthew@epa.gov]
From: Fields, Wanda
Sent: Thur 4/10/2014 7:14:39 PM
Subject: Congressional Correspondence: AL-14-000-8025
AL 14-000-8025 Valadao.pdf

CITIZEN: Valadao, David G.

PRIMARY SUBJECT: Final Regulations to Establish Requirements for Cooling Water Intake Structures

STATUS: Pending

DUE DATE: 4/24/2014

RECEIVED DATE: 4/10/2014

ASSIGNMENT: OST

Thank You,

Wanda R. Fields

Program Analyst

Office of Water

Management and Operations Staff

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UNITED STATES
HOUSE OF REPRESENTATIVES

COMMITTEE ON APPROPRIATIONS

SUBCOMMITTEE ON AGRICULTURE, RURAL DEVELOPMENT, FOOD AND DRUG ADMINISTRATION

SUBCOMMITTEE ON INTERIOR AND THE ENVIRONMENT

SUBCOMMITTEE ON MILITARY CONSTRUCTION AND VETERANS AFFAIRS

April 9, 2014

The Honorable Regina McCarthy
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20004

Dear Administrator McCarthy,

I am writing to express my thoughts regarding the impending deadline for completion of the U.S. Environmental Protection Agency's (EPA) rulemaking entitled "Final Regulations to Establish Requirements for Cooling Water Intake Structures at Existing Facilities and Amend Requirements at Phase I Facilities". As originally proposed, the rule would have had serious negative impacts on power generation and costs to consumers. It is my understanding that factors such as these are already being considered as part of a rulemaking underway in the State of California. It is critical that any rule completed by your agency respects the processes already underway in California.

As you may recall, I previously raised concerns about this rule, which changes Section 316(b) of the Clean Water Act, as part of the House Committee on Appropriations Interior and Environment Subcommittee hearings in May of 2013. At that time, I expressed to Acting Administrator Perciasepe that it was critical for the EPA's final 316(b) rule to avoid new layers of federal regulation that would conflict with or impede progress being made in ongoing state-level rulemakings. Nearly a year has passed, and the need for flexibility within the final rule remains vital as your team works to finalize this rulemaking.

Without the necessary flexibility within the final regulation, the rule could result in the closure of numerous nuclear power facilities, or alternatively, massive new costs to comply that could negatively impact ratepayers across the United States. Your statements last week at the House Energy and Commerce Committee seem to indicate your appreciation for the potential detrimental impacts of the pending rule. As you stated, "And we certainly want to do nothing to impact reliability." With the recent retirement of a large nuclear power facility in California,

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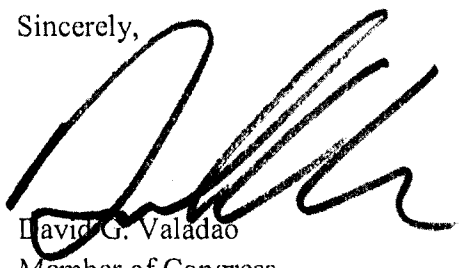
combined with current drought conditions across the state, Californians are particularly sensitive to impacts on the power grid.

California is already moving forward on its own regulatory approach for cooling water intake structures to address concerns related to entrainment and impingement. The State's regulatory approach weighs a number of factors, including reliability, emissions, and affordability for consumers, all of which are critical considerations for my constituents. I am concerned that the rule the EPA will soon complete will limit the State of California's ability to make decisions within its capacity to make site-specific determinations under the Clean Water Act.

I request clarification from EPA that clear language will be included within the final 316(b) rule that ensures California will have the ability to move forward with its own rulemaking, without a new federal layer of red tape under the Endangered Species Act, Clean Water Act, or other rules that could further complicate the state's process. My understanding is the EPA may be completing its rulemaking later this month, so I look forward to your quick reply. Thank you for your prompt consideration of my request.

Sincerely,



David G. Valadao
Member of Congress

To: Stoner, Nancy[Stoner.Nancy@epa.gov]
From: Penman, Crystal
Sent: Thur 4/10/2014 10:57:39 AM
Subject: RE: 316b

Printed/review box.

From: Stoner, Nancy
Sent: Wednesday, April 09, 2014 8:08 PM
To: Penman, Crystal
Subject: Fw: 316b

Pls put in my review box, thx

From: Loop, Travis
Sent: Wednesday, April 9, 2014 4:16:52 PM
To: Stoner, Nancy; Kopocis, Ken
Cc: Penman, Crystal
Subject: 316b

Here is the release and roll out for review and input. Seems like there should be more notifications.

We have a roll out meeting on Friday at 11 with OEAEE, OCIR, OST, etc. Let me know if I should add you to invite.

Travis Loop
Director of Communications
Office of Water
U.S. Environmental Protection Agency
202-870-6922

To: Stoner, Nancy[Stoner.Nancy@epa.gov]; Kopocis, Ken[Kopocis.Ken@epa.gov]
Cc: Penman, Crystal[Penman.Crystal@epa.gov]
From: Loop, Travis
Sent: Wed 4/9/2014 8:16:52 PM
Subject: 316b
PRESS RELEASE Cooling Water Intake 4.8.14.docx

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Travis Loop
Director of Communications
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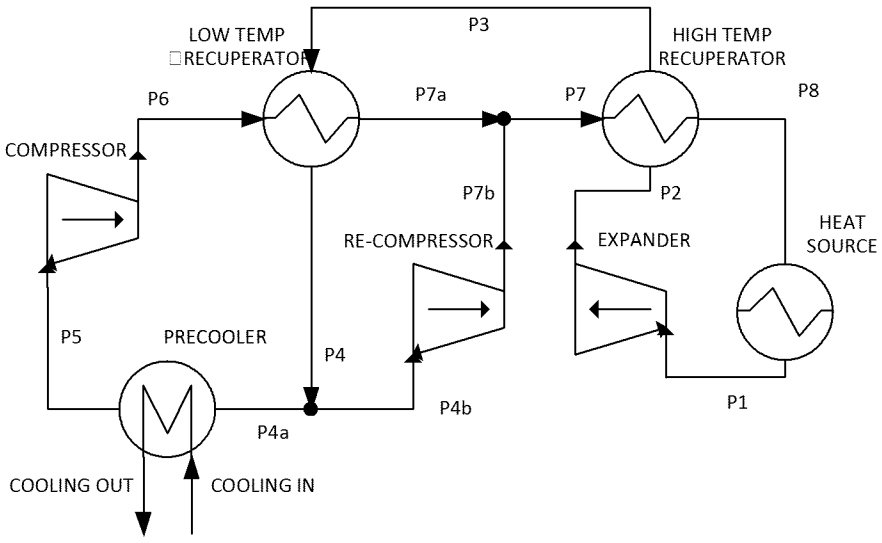
P3
LOW TEMP
RECUPERATOR
HIGH TEMP
RECUPERATOR
P6
P7a
P7
P8
COMPRESSOR
P7b
P2
HEAT
SOURCE
RE-COMPRESSOR
EXPANDER
P5
PRECOOLER
P4
P4b
P1
P4a
COOLING OUT
COOLING IN